Florida Morbidity Statistics Report 2008

Florida Department of Health
Bureau of Epidemiology

Florida Morbidity Statistics Report

2008

Florida Department of Health
Division of Disease Control
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http://www.doh.state.fl.us/disease_ctrl/epi/Morbidity_Report/amr_2008.pdf

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Acknowledgements

Disease control and prevention is one of the core functions of any city, county, local, or state public health agency. Indeed, the mission of the Florida Department of Health is “to promote, protect and improve the health of all Floridians.” With this in mind, there has been a worrisome trend in the re-emergence of diseases that were considered rare even just a decade ago. Many of these re-emerging diseases are vaccine-preventable and have seen a resurgence in parts of the state, country, and world where immunization coverage rates have slipped. There have been reports of measles outbreaks in many European countries as well as internationally imported cases in Australia and New Zealand. The ease of international travel and the popularity of Florida as a destination make cases of infectious disease in foreign countries a real threat to the health of Floridians. Additionally, the decrease in immunization rates in the U.S. puts many more people at risk and increases the possibility of endemic transmission of many of these diseases.

Protection of the public’s health from these emerging and re-emerging diseases is a collaborative effort by many within and outside the Florida Department of Health and requires diligence in all areas. Our most important partners facing this emerging trend are the physicians, nurses, laboratorians, hospital infection control practitioners and other health care professionals who participate in reportable disease surveillance. Without their participation, our ability to recognize and intervene in emerging public health issues would be impeded.

The Bureau of Epidemiology would like to thank the other program areas within the Florida Department of Health that contributed information to this report including the Bureau of Immunization, Bureau of HIV/AIDS, Bureau of Sexually Transmitted Diseases Prevention and Control, Bureau of Tuberculosis and Refugee Health, and Bureau of Environmental Public Health Medicine. Finally, many thanks are extended to the County Health Department staff and other public health professionals who are involved in reportable disease surveillance, either through disease control activities, case investigations, data collection, or other essential functions.

We hope readers will find this document useful when setting priorities and directions for action at the individual and community levels to improve the health of all Floridians.

Julia Gill, Ph.D., M.P.H.
Chief, Bureau of Epidemiology

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Introduction

Purpose

The Florida Morbidity Statistics Report is compiled to:

1. Summarize annual morbidity from notifiable acute communicable and environmental diseases, and cancer in Florida;
2. Describe patterns of disease as an aid in directing future disease prevention and control efforts; and,
3. Provide a resource to medical and public health authorities at county, state, and national levels.

Report Format

This report is divided into 10 sections:

Section 1: Summary of Selected Notifiable Diseases and Conditions
Section 2: Selected Notifiable Diseases and Conditions
Section 3: Summary of Foodborne Diseases
Section 4: Summary of Antimicrobial Resistance Surveillance
Section 5: Summary of Enhanced Surveillance for Influenza and Community Associated MRSA Deaths
Section 6: Summary of Notable Outbreaks and Case Investigations
Section 7: Recently Published Papers and Reports
Section 8: Summary of Cancer Data, 2006
Section 9: Summary of Revisions to Florida's Notifiable Disease Reporting Rule (Chapter 64D-3, *F.A.C.*)

Data Sources

Data presented in this report are based on reportable disease information received by county and state health department staff from physicians, hospitals, and laboratories. Data on occurrence of reportable diseases in Florida were obtained through passive and sometimes active surveillance. Reporting suspect and confirmed notifiable diseases or conditions in the State of Florida is mandated under Florida Statute 381.0031, Chapter 64D-3, *Florida Administrative Code* (*F.A.C.*). People in charge of laboratories, practitioners, hospitals, medical facilities, or other locations providing health services (can include schools, nursing homes, and state institutions) are required to report diseases or conditions and the associated laboratory test results listed in the Table of Notifiable Diseases or Conditions, Chapter 64D-3 *F.A.C*. Reporting test results by a laboratory does not nullify the practitioner's obligation to also report the disease or condition. These data are the basis for providing useful information on reportable diseases and conditions in Florida to healthcare workers and policymakers, and would not be possible without the cooperation of the extensive network involving both private and public sector participants.

1. Passive surveillance relies on physicians, laboratories, and other healthcare providers to report diseases to the Florida Department of Health (FDOH) using a confidential morbidity report form, electronically, by telephone, or by facsimile.
2. Active surveillance entails FDOH staff regularly contacting hospitals, laboratories, and physicians in an effort to identify all cases of a given disease.
3. Increasingly, information about cases of reportable diseases is passed from providers, especially laboratories, to the FDOH as electronic records, which occurs automatically.

Interpreting the Data

This report should be interpreted in light of the following limitations:

1. Under-reporting
Evaluations of infectious disease reporting systems have, in general, indicated that the completeness of reporting varies by disease. The less common, more severe reportable diseases such as bacterial meningitis, diphtheria, polio, botulism, anthrax, tuberculosis, and congenital syphilis are more completely reported than the more common but (individually) less severe diseases such as hepatitis A or campylobacteriosis. Variation in reported disease incidence at the local level reflects, to varying degrees, both differences in the true incidence of disease and differences in the vigor with which surveillance is performed.

2. Reliability of Rates
All incidence rates in this report are expressed as the number of reported cases of a disease per 100,000 population unless otherwise specified. Animal rabies is only reported as the number of cases, because no reliable denominators exist for animal populations. Rates for diseases with only a few cases reported per year can be unstable and should be interpreted with caution. The observation of zero events is especially difficult to interpret. All rates in the report based on fewer than 19 events should be considered unreliable. This translates into a relative standard error of the rate of 23% or more, which is the cut-off for rate reliability used by the National Center for Health Statistics.

3. Reporting Period
The data in this report are aggregated by the date the case was reported to the Bureau of Epidemiology for each of the years presented, beginning January 1 and ending December 31. Frequency counts included only cases reported during this time. In some cases, diseases reported in 2008 may have onset or diagnosis dates in 2007.

4. Case Definition
Cases are classified as confirmed, probable, or suspected at the local level, using a published set of surveillance case definitions (Surveillance Case Definitions for Select Reportable Diseases in Florida, available at http://www.doh.state.fl.us/disease_ctrl/epi/surv/CaseDefinitions.html). For cases of selected diseases, these classifications are reviewed at the state level. In this report confirmed and probable cases have been included for all diseases, but no suspected cases have been included.

5. Place of Acquisition of Disease or Condition
The distribution of cases among Florida counties is determined by the patient's reported county of residence. Cases are allocated to their county of residence regardless of where they became ill or are/were hospitalized, diagnosed, or exposed. Cases in people whose official residence is outside the state of Florida, but who became ill or are/were hospitalized or diagnosed in Florida, are not included. These cases are referred through an interstate reciprocal notification system to the state where the patient resides.

6. Population Estimates
All population estimates are from the Community Health Assessment Resource Tool Set (CHARTS). The CHARTS system receives its estimates from the Florida Legislature's Office of Economic and Demographic Research (EDR). Estimates are updated once per year in the CHARTS system. Note that previous editions of this report may show somewhat different populations and rates for a given year than the ones shown here, as these estimates are revised periodically.

7. Incomplete Case Information

Certain analyses may not include all reportable cases of a specific disease due to incomplete case information. For graphs denoting month of onset, it is important to note that only those cases of disease for which an onset date could be determined are included.

Florida County Boundaries

Table A. Florida Population by Year and County, 1999-2008. (Source – Florida CHARTS; accessed February 2009)

County	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
State Total	15,679,606	16,074,896	16,412,296	16,772,201	17,164,199	17,613,368	18,018,497	18,440,700	18,731,287	18,896,559
Alachua	213,346	219,239	224,397	229,524	232,110	237,374	241,858	244,648	248,183	249,788
Baker	21,498	22,388	22,641	23,105	23,472	24,069	23,980	25,216	25,692	25,905
Bay	147,075	148,692	150,748	152,818	155,414	159,108	162,499	166,160	167,881	168,817
Bradford	25,767	26,110	26,136	26,649	27,084	27,865	28,195	28,685	29,131	29,304
Brevard	469,515	478,541	487,131	497,429	510,622	524,046	534,596	545,460	553,481	557,741
Broward	1,590,361	1,631,445	1,654,923	1,673,972	1,706,363	1,730,580	1,746,603	1,755,392	1,767,538	1,775,101
Calhoun	12,863	13,038	13,101	13,286	13,491	13,636	14,011	14,192	14,545	14,688
Charlotte	139,032	142,357	145,481	149,486	152,865	158,006	153,788	161,731	165,061	166,473
Citrus	116,208	118,689	121,078	123,704	126,475	129,822	133,472	137,690	140,652	142,143
Clay	137,357	141,331	144,161	151,746	157,325	164,868	171,118	178,922	186,014	189,667
Collier	242,408	254,571	267,632	281,148	295,848	309,369	320,859	327,945	335,235	340,589
Columbia	55,446	56,683	57,354	58,537	59,218	60,821	61,744	64,052	65,658	66,429
Dade	2,219,329	2,262,902	2,292,316	2,320,465	2,354,404	2,388,138	2,432,276	2,442,170	2,466,645	2,478,585
Desoto	31,436	32,404	32,741	32,959	33,912	34,220	32,391	33,353	34,086	34,294
Dixie	13,559	13,883	14,154	14,530	14,768	15,054	15,482	15,715	15,826	15,927
Duval	767,860	782,691	797,566	813,817	829,937	843,772	865,965	883,875	900,608	908,378
Escambia	292,937	294,911	297,321	300,421	304,165	308,068	303,240	310,617	311,701	311,924
Flagler	47,559	50,620	53,881	58,004	62,511	71,004	80,559	90,663	94,199	96,912
Franklin	9,710	9,871	9,974	10,250	10,530	10,682	10,909	12,082	12,257	12,286
Gadsden	45,312	45,070	45,419	46,073	46,600	46,965	47,883	48,380	49,630	50,152
Gilchrist	13,980	14,533	14,759	15,140	15,637	16,016	16,303	16,812	17,171	17,375
Glades	10,407	10,595	10,624	10,675	10,759	10,763	10,743	10,849	11,113	11,301
Gulf	13,559	14,785	15,101	15,290	15,691	16,235	16,543	16,565	16,875	17,001
Hamilton	12,831	13,457	13,792	13,952	14,039	14,346	14,319	14,571	14,725	14,763
Hardee	26,543	26,952	27,021	27,474	27,434	27,898	27,277	27,240	27,574	27,650
Hendry	35,608	36,300	36,256	36,174	36,739	37,800	38,610	38,870	39,846	40,295
Hernando	128,733	131,298	133,497	137,613	141,574	146,118	152,049	158,441	163,035	165,329
Highlands	85,892	87,676	88,373	89,343	90,770	92,456	93,807	97,336	98,987	99,760
Hillsborough	978,079	1,005,808	1,034,164	1,062,140	1,085,318	1,114,774	1,137,583	1,171,585	1,197,312	1,209,978
Holmes	18,371	18,620	18,713	18,746	18,983	19,027	19,189	19,525	19,432	19,406
Indian River	110,142	113,755	116,291	118,884	121,887	127,831	130,849	136,546	140,469	142,452
Jackson	46,050	46,998	47,534	47,963	49,218	48,891	49,883	50,286	50,482	51,106

County	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Jefferson	13,307	12,874	13,107	13,329	13,618	14,110	14,265	14,390	14,513	14,562
Lafayette	6,703	7,061	7,076	7,245	7,394	7,559	8,064	8,092	8,273	8,571
Lake	204,152	212,823	222,988	233,622	242,919	254,246	265,716	279,583	288,078	293,216
Lee	430,644	444,151	459,278	481,014	499,387	526,157	555,874	594,219	620,778	634,660
Leon	236,658	240,631	245,070	249,744	256,921	265,258	272,749	272,573	272,938	273,741
Levy	33,759	34,626	35,325	36,197	36,856	37,691	38,136	39,277	40,219	40,677
Liberty	6,967	7,045	7,145	7,165	7,248	7,372	7,623	7,784	7,763	7,767
Madison	18,596	18,775	18,878	18,974	19,183	19,564	19,738	19,846	19,960	20,018
Manatee	259,039	265,701	272,342	279,366	288,888	297,037	306,557	309,952	317,395	321,323
Marion	253,235	260,407	265,629	273,602	284,232	295,550	307,646	317,755	326,791	331,843
Martin	124,952	127,430	129,415	132,009	135,280	138,329	141,871	142,859	143,914	144,736
Monroe	79,875	79,721	80,850	81,030	80,473	81,336	82,628	80,055	78,729	78,157
Nassau	56,022	58,037	59,452	61,643	63,523	65,478	66,019	68,662	69,745	70,447
Okaloosa	167,880	171,264	174,228	178,036	182,020	186,744	189,766	193,668	197,164	198,884
Okeechobee	35,452	35,998	36,211	36,715	37,377	38,153	37,752	38,821	39,038	39,116
Orange	864,197	906,000	936,749	962,531	989,962	1,021,215	1,050,939	1,087,172	1,109,714	1,123,324
Osceola	166,024	174,107	182,202	197,901	213,723	228,755	237,659	259,521	267,510	273,266
Palm Beach	1,107,053	1,137,532	1,160,977	1,190,653	1,218,508	1,249,598	1,272,335	1,290,600	1,295,586	1,302,077
Pasco	337,348	346,882	354,196	364,900	378,085	392,507	410,758	427,594	435,913	441,188
Pinellas	917,331	923,308	930,602	935,274	941,435	944,966	948,925	947,122	942,911	940,645
Polk	475,268	487,183	498,011	504,381	514,247	531,472	545,064	570,067	583,315	589,784
Putnam	70,029	70,532	70,929	71,481	72,114	73,435	73,897	74,549	74,816	74,903
Saint Johns	118,249	124,613	129,880	135,467	141,216	151,114	159,168	167,553	175,521	179,857
Saint Lucie	189,330	194,062	199,390	205,396	213,614	228,480	243,061	263,319	273,868	279,469
Santa Rosa	115,333	118,605	122,252	125,947	129,842	134,761	137,245	142,004	142,094	142,991
Sarasota	319,980	328,135	335,428	341,784	350,664	360,214	370,123	381,828	388,641	392,262
Seminole	357,714	368,231	380,763	389,549	396,934	405,565	413,937	422,288	426,364	429,244
Sumter	50,539	54,203	58,083	61,979	63,522	67,221	75,660	84,687	90,996	94,125
Suwannee	34,226	35,091	35,744	35,815	37,479	37,863	38,319	39,008	39,816	40,773
Taylor	19,264	19,297	19,594	19,878	20,794	20,977	21,395	21,696	22,721	23,062
Union	13,335	13,473	13,660	13,786	13,793	14,752	15,135	15,160	15,865	16,112
Volusia	436,218	445,676	453,840	462,377	473,185	486,874	497,224	505,317	508,468	511,094
Wakulla	21,917	23,150	23,936	24,340	25,141	25,692	27,193	28,727	29,632	30,575
Walton	39,387	40,990	43,270	46,052	47,472	51,167	54,218	56,199	57,318	58,264
Washington	20,850	21,069	21,516	21,702	21,987	22,534	23,255	23,179	23,876	24,307

Table B. Florida Population by Age Group, 2008

Age Group	2008
< 1	224,519
1-4	898,077
5-9	1,153,024
10-14	1,175,813
15-17	738,078
18-19	481,775
20-24	1,219,961
25-29	1,162,368
30-34	1,138,562
35-39	1,209,419
40-44	1,306,416
45-49	1,373,927
50-54	1,304,080
55-59	1,194,616
60-64	1,055,689
65-69	866,658
70-74	739,132
75-79	652,268
80-84	523,055
85+	479,122
Total	18,896,559

Table C. Florida Population by Gender, 2008

Sex	2008
Male	9,255,976
Female	9,640,583
Total	18,896,559

Table D. Florida Population by Race, Aggregated to White and Non-White, 2008

Race	2008
White	15,208,029
Black	3,147,900
Other Non-white	540,630
Total	18,896,559

List of Reportable Diseases/Conditions in Florida, 2008

Section 381.0031 (1,2), Florida Statutes, provides that “Any practitioner, licensed in Florida to practice medicine, osteopathic medicine, chiropractic, naturopathy, or veterinary medicine, who diagnoses or suspects the existence of a disease of public health significance shall immediately report the fact to the Department of Health.” County health departments serve as the Department’s representative in this reporting requirement. Furthermore, this Section provides that “Periodically the Department shall issue a list of diseases determined by it to be of public health significance…and shall furnish a copy of said list to the practitioners…”. This list reflects diseases and conditions that were reportable in 2008. However, additional updates were made in November, 2008; Annual Morbidity Reports for subsequent years will reflect changes in the list.

Acquired Immune Deficiency Syndrome (AIDS)
Anthrax
Botulism
Brucellosis
California Serogroup Virus (neuroinvasive and non-neuroinvasive)
Campylobacteriosis
Cancer (except non-melanoma skin cancer, and including benign and borderline intracranial and CNS tumors)
Chancroid
Chlamydia
Ciguatera Fish Poisoning (Ciguatera)
Clostridium perfringens, Epsilon Toxin (disease due to)
Congenital Anomalies
Conjunctivitis (in neonates ≤ 14 days old)
Creutzfeldt-Jakob Disease (CJD)
Cryptosporidiosis
Cyclosporiasis
Dengue
Diphtheria
Eastern Equine Encephalitis Virus Disease (neuroinvasive and non-neuroinvasive)
Ehrlichiosis/Anaplasmosis [human granulocytic (HGA), human monocytic (HME), human other or unspecified agent]
Encephalitis, Other (non-arboviral)
Enteric diseases due to:
Escherichia coli, O157:H7
Escherichia coli, Other (known serotypes)
Giardiasis (acute)
Glanders
Gonorrhea
Granuloma Inguinale
Haemophilus influenzae (meningitis and invasive disease)
Hansen’s Disease (Leprosy)
Hantavirus Infection
Hemolytic Uremic Syndrome
Hepatitis A
Hepatitis B, C, D, E, and G
Hepatitis B Surface Antigen (HBsAg) Positive in a Pregnant Woman or a Child ≤ 24 months of age
Herpes Simplex Virus (HSV) [in Infants to 6 months of age; anogenital in children ≤ 12 yrs]
Human Immunodeficiency Virus (HIV)
Human Papillomavirus (HPV) [in children ≤ 6 years; anogenital in children ≤ 12 yrs, cancer associated strains]
Influenza Due to Novel or Pandemic Strains
Influenza-associated Pediatric Mortality (in persons aged < 18 yrs)
Lead Poisoning
Legionellosis
Leptospirosis
Listeriosis
Lyme Disease
Lymphogranuloma Venereum (LGV)
Malaria
Measles (Rubeola)
Melioidosis
Meningitis (bacterial, cryptococcal, mycotic)
Meningococcal Disease (includes meningitis and meningococcemia)
Mercury Poisoning
Mumps
Neurotoxic Shellfish Poisoning
Pertussis
Pesticide-Related Illness and Injury
Plague
Poliomyelitis
Psittacosis (Ornithosis)
Q Fever
Rabies (human, animal)
Rabies (possible exposure)
Ricin Toxicity
Rocky Mountain Spotted Fever
Rubella (including congenital)
St. Louis Encephalitis (SLE) Virus Disease (neuroinvasive and non-neuroinvasive)
Salmonellosis
Saxitoxin Poisoning (including paralytic shellfish poisoning)
Severe Acute Respiratory Syndrome-associated *Coronavirus* (SARS-CoV) Disease
Shigellosis
Smallpox
Staphylococcus aureus (with intermediate or full resistance to vancomycin, VISA, VRSA)
Staphylococcus Enterotoxin B
Streptococcal Disease (invasive, Group A)
Streptococcus pneumoniae (invasive disease)
Syphilis
Tetanus
Toxoplasmosis (acute)
Trichinosis
Tuberculosis
Tularemia
Typhoid Fever
Typhus Fever (epidemic and endemic)
Vaccinia Disease
Varicella Mortality
Venezuelan Equine Encephalitis Virus Disease (neuroinvasive and non-neuroinvasive)
Vibriosis (*Vibrio* infections)
Viral Hemorrhagic Fevers (Ebola, Marburg, Lassa, Machupo)
West Nile Virus Disease (neuroinvasive and non-neuroinvasive)
Western Equine Encephalitis Virus Disease (neuroinvasive and non-neuroinvasive)
Yellow Fever
Any disease outbreak
Any grouping or clustering

Selected Florida Department of Health Contacts

Division of Disease Control

Bureau of Epidemiology	(850) 245-4401 (accessible 24/7/365)
Bureau of Immunization	(850) 245-4342
Bureau of HIV/AIDS	(850) 245-4334
Bureau of Sexually Transmitted Disease Prevention and Control	(850) 245-4303
Bureau of Tuberculosis and Refugee Health	(850) 245-4350

Division of Environmental Health

Bureau of Environmental Public Health Medicine	(850) 245-4277

Vaccine-Preventable Diseases in Florida

Millions of people have benefited from vaccines for more than two centuries. The history of vaccines and immunization began in the 1790s with Edward Jenner's creation of the world's first vaccine for smallpox. Before the existence of vaccines, diseases such as smallpox, measles, rubella, diphtheria, polio, and pertussis (whooping cough) were common childhood killers and left many survivors disabled for life. Fortunately, in Florida and the United States these devastating diseases have been almost eliminated due to the widespread use of safe, effective, and affordable vaccines. In fact, smallpox, a disease that has caused countless suffering and death for centuries, was eradicated worldwide through vigorous vaccination programs. There is little else in medicine that can compare to this achievement. With concerted effort, other diseases, such as polio and measles (a disease that infects approximately thirty million children per year, killing approximately 750,000 of them), can similarly be eradicated.

Public health professionals and the World Health Organization (WHO) rank immunizations in the top ten health achievements of the past century. Immunization is as important as the development of safe drinking water and public sanitation practices. Vaccines protect infants, children, and adults from the unnecessary harm and premature death caused by a number of severe communicable diseases. Vaccination is the single most effective communicable disease prevention strategy. Vaccines are also among the most cost-effective medical interventions available, providing huge savings in direct medical care costs, as well as indirect costs such as lost time from work and school. Unlike other areas of healthcare, widespread immunization has effectively leveled racial-ethnic disparities in this country.

Florida's childcare and school entry immunization requirements ensure that students are protected against communicable diseases in settings where such diseases are easily transmitted. When most children in a community are immunized, vulnerable children who are not able to be immunized due to medical reasons are also protected. This concept, known as "herd immunity," is the key to the low levels of vaccine-preventable diseases in Florida, nationally, and in most developed countries. Herd immunity occurs when a large portion of the population (85%–98% depending on the disease) receives vaccine against a disease. Such high immunization coverage rates protect susceptible individuals in a group because, due to immunity in most of the group, transmission of disease cannot be sustained.

An important reason for vaccines' effectiveness in reducing the spread of communicable diseases is the fact that early childhood immunization and childcare/school entry immunization requirements lead to herd immunity. The huge reductions now seen in most of the vaccine-preventable diseases did not occur until states implemented school and childcare immunization entry requirements. Without herd immunity, those who are too young to be immunized, and/or have medical or religious contraindications to immunization, and/or have diseases that cause immunodeficiency, would all be at much greater risk for infections and their sequelae. That is, when fewer children are immunized, then children who cannot be immunized are much more vulnerable to getting infected with a disease.

Section 1003.22 of the Florida Statutes requires immunization for school entry and attendance, and allows for medical (temporary and permanent) or religious exemption from immunizations. The Florida childcare and school entry immunization requirements cover public and private schools, childcare facilities, and family childcare homes. They are in accordance with the recommendations from the Centers for Disease Control and Prevention's (CDC) Advisory Committee on Immunization Practices (ACIP), the American Academy of Pediatrics, the American Academy of Family Physicians, and the American Medical Association. These organizations set the standard of care and practice that healthcare providers, health plans, and insurance companies follow with respect to providing immunizations.

Florida Statutes require specific immunizations for infants and children who attend childcare, family childcare homes, pre-kindergarten and school. Immunization entry requirements for school and childcare settings relate to factors such as whether the disease is communicable in childcare and school settings, whether the vaccine has been on the market long enough to assess for previously undetected side effects, and whether the vaccine is covered by insurance and health plans.

Immunization safety is of utmost concern to parents, healthcare providers, the public health community, legislators and vaccine manufacturers. Vaccines undergo rigorous and lengthy testing for both safety and efficacy prior to approval by the Food and Drug Administration (FDA). Today's vaccines are much more pure than those produced decades ago. This increased purity has the effect that the total number of antigens (from the vaccines themselves and from other substances in the vaccine preparation) introduced to the body is much less, even as the number of recommended vaccines has increased.

Concerns about vaccine safety have been addressed since the time when vaccines were first introduced. Public health authorities and governmental bodies must balance the right to immunize for the "common good" with individual rights and concerns. The U.S. Supreme Court, in 1905, ruled in Jacobson v. Massachusetts that the need to protect the public health through compulsory smallpox vaccination outweighed the individual's right to privacy. This justification is consistently applied to childcare and school entry immunization requirements, with allowances for religious beliefs and medical conditions.

A robust immunization program has tremendous benefit to individual and public health. Calls for opposing immunizations and/or school entry vaccination requirements, or for providing easier and more numerous ways to obtain exemptions for required vaccinations, are resulting in growing numbers of individuals not fully immunized. This, in turn, is leading to increases in outbreaks of vaccine-preventable disease such as measles and pertussis. This is occurring not just in the United States but in a number of developed countries such as the Netherlands, Great Britain, Switzerland, France, and Israel. In fact, Great Britain has recently had to rescind its 1980's declaration that measles was no longer endemic (that is, children in Great Britain can now contract measles even if no new cases are brought in from the outside). Thus, children and adults in developed nations are increasingly suffering from significant illness, disability, and death due to vaccine-preventable diseases. With the ease and volume of international travel today, Florida is highly vulnerable to the importation of such diseases, especially if the number of children immunized and herd immunity levels decline.

Epidemiology in Florida

The following tables and charts have been compiled from surveillance data collected in Florida over the past seventy years to quantify and visually assess the impact that vaccination practices have had on the burden of disease in this state. Table 1 depicts the precipitous decline in the number of vaccine-preventable disease cases and deaths after widespread use of vaccination. While comparing the number of vaccine-preventable disease cases in 2007 to the number of cases in 1934 is certainly meaningful, this may not be a fair comparison due to the drastic change in Florida's population over time. Florida's population has grown from just under 1.6 million residents in 1934 to over 18.5 million in 2005; a larger population would be expected to have a larger number of cases, all else being equal. To address this, the 2007 population (18,762,014 residents) was used to estimate the number of cases that would have been reported for each year, had the population size been comparable to the 2007 population. This standardized estimate was calculated by dividing the 2007 population by the population for a given historical year to get a population ratio. The number of cases reported for that given year was multiplied by the population ratio. For example, the 2007 population (18,762,014 residents) was 10.1 times the population in 1939 (1,853,660 residents). The number of cases reported in 1939 was multiplied by 10.1 to estimate the number of cases that would have been reported in 1939 if the 1939 population was equal to the 2007 population. Table 2 presents a summary of these standardized estimates of select vaccine-preventable disease cases occurring in census years for 1940 to 2000. These standardized estimations are represented in Charts 1-11 as a dashed line. The actual number of cases reported for each year is represented in the charts as a solid line. Note that as the population size approaches the 2007 population, the dashed line and the solid line converge.

Table 1: Average Vaccine-Preventable Disease Cases and Deaths Pre-Vaccine Compared to Post-Vaccine (2007) in Florida

Disease (Pre-Vaccine Years Averaged)	Pre-Vaccine Cases/ Year	Pre-Vaccine Deaths/ Year	Year Vaccine in Wide Use	Post-Vaccine (2007) Cases	Post-Vaccine (2007) Deaths
Diphtheria (1936-1945)	319	36	1943	0	0
Measles (1953-1962)	5,723	11	1968	5	0
Mumps (1963-1968)	3,732	1	1967	21	0
Pertussis (1934-1943)	723	58	1941	211	0
Polio (acute and paralytic) (1941-1954)	416	24††	1955	0	0
Rubella* (1966-1969)	1,580	1	1969	0	0
Smallpox (1934-1944)	442	N/A	N/A	0	0
Tetanus (1947-1949)	57	37	1949	5	1
Hepatitis A (1986-1995)	816	6	1995	171	2
Acute hepatitis B (1982-1991)	1,364	44	1986	368	38
H. influenzae meningitis (1980-1989)	378	9	1990	10	0
Total	20,322	32		2,112	41

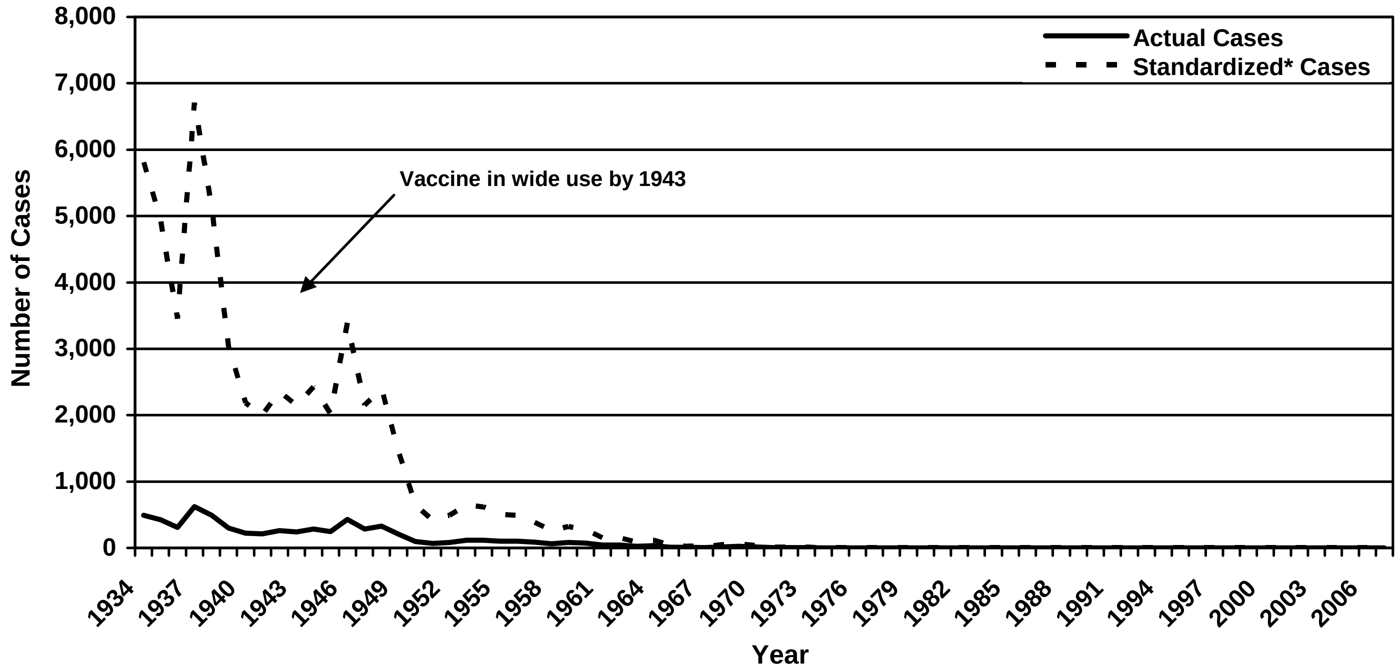
*Congenital Rubella Syndrome cases are not included.
†† Deaths include only those attributable to acute Polio.

Table 2. Summary of Standardized Cases* of Selected Vaccine-Preventable Disease Cases Occurring in Census Years 1940 through 2000

Year	Diphtheria	Measles	Mumps	Pertussis	Polio	Rubella	Smallpox	Tetanus
1940	2,185	22,581	2,596	3,752	323	1,479	69	167
1950	645	16,620	9,657	3,133	3,133	299	0	286
1960	274	15,362	16,476	1,587	244	3,130	0	105
1970	38	4,160	8,309	260	0	9,829	0	44
1980	0	826	373	130	0	208	0	8
1990	1	855	281	84	0	24	0	9
2000	0	2	8	78	0	2	0	1

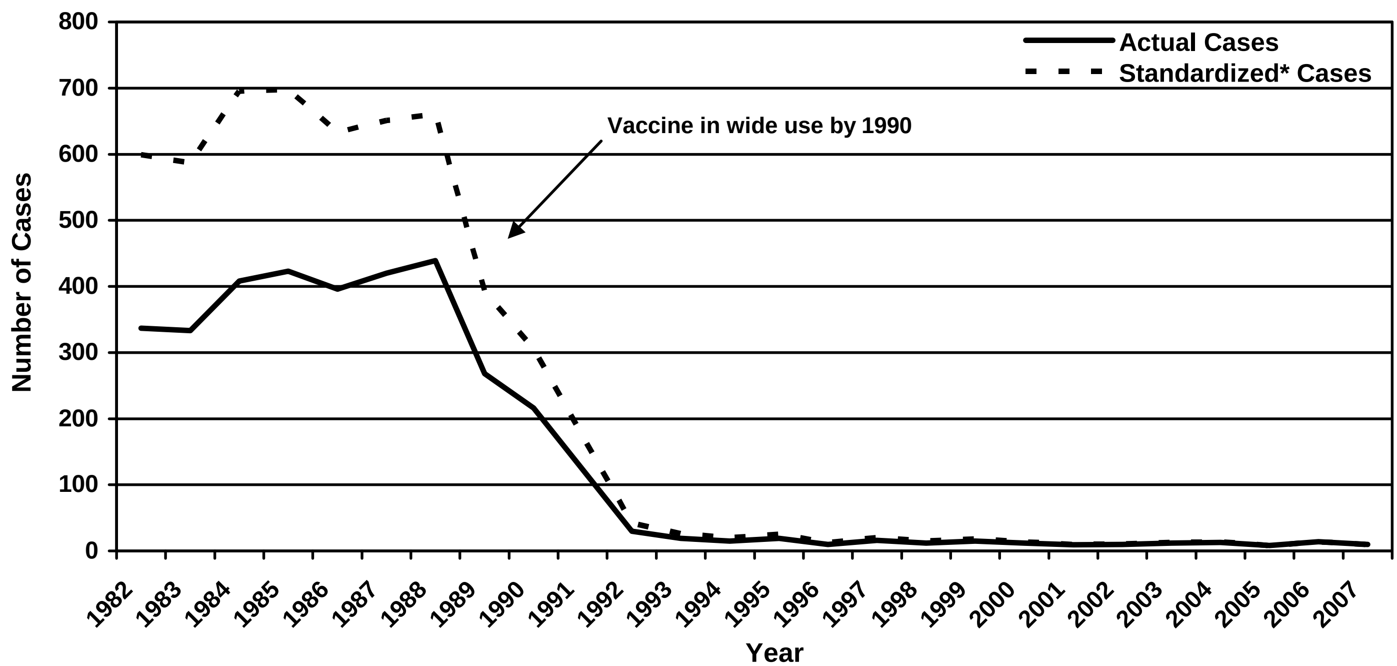
*Number of cases that would have occurred in Florida each year if Florida had a population of 18,762,014 (see text for further explanation).

Reported and Standardized* Diphtheria Cases in Florida, 1934-2007



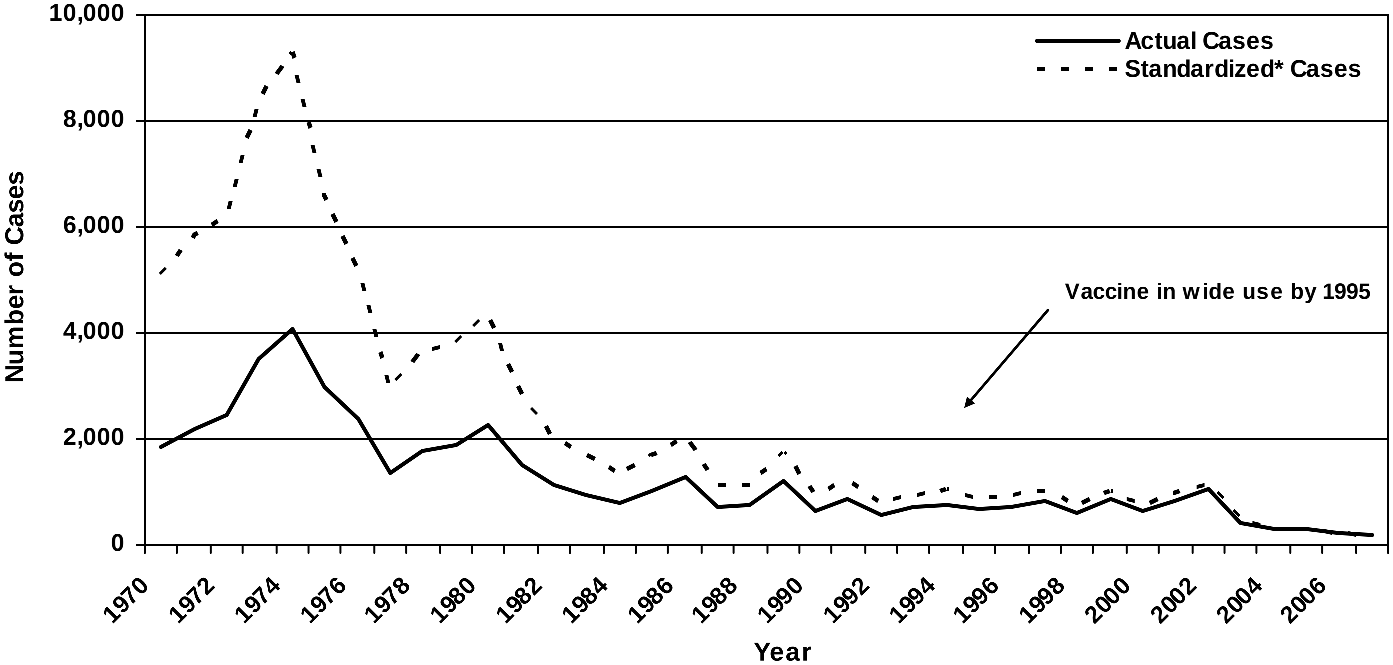
*Number of cases that would have occurred in Florida each year if Florida had a population of 18,762,014. See the paragraph preceding these charts for a more detailed description of these calculations.

Reported and Standardized* *H. influenzae* Meningitis in Florida, 1982-2007



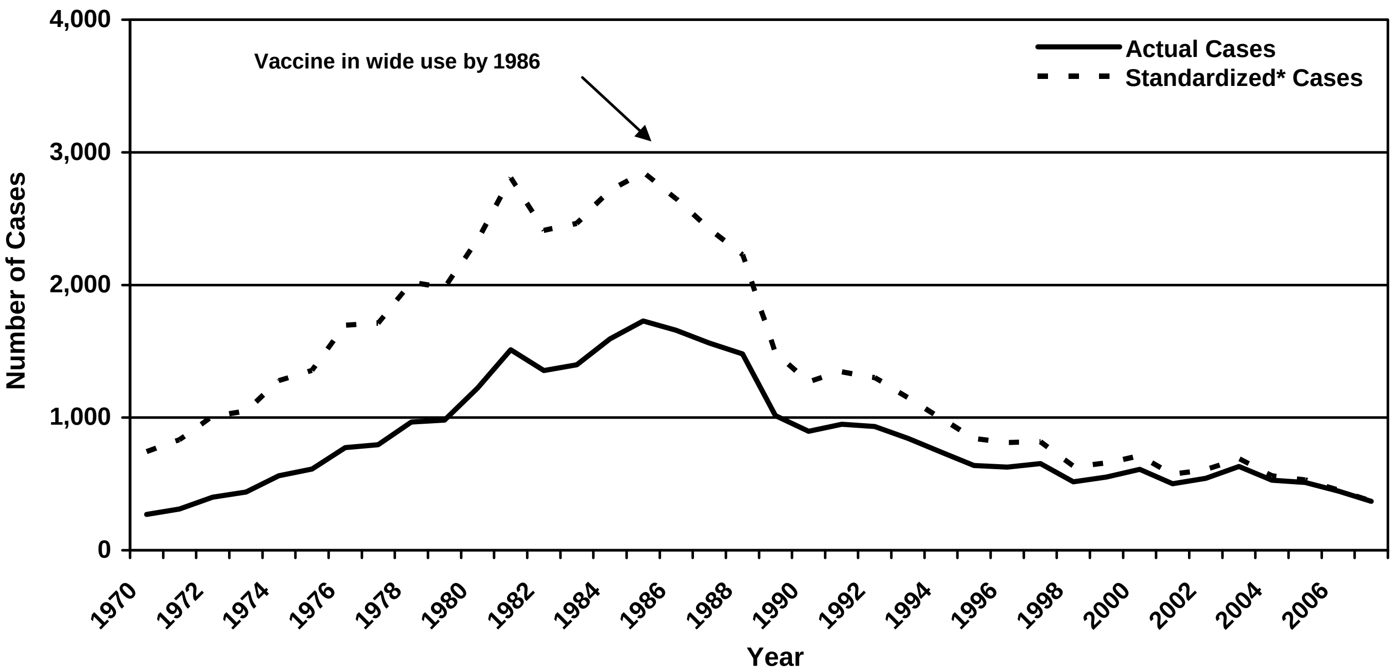
*Number of cases that would have occurred in Florida each year if Florida had a population of 18,762,014. See the paragraph preceding these charts for a more detailed description of these calculations.

Reported and Standardized* Hepatitis A Cases in Florida, 1970-2007

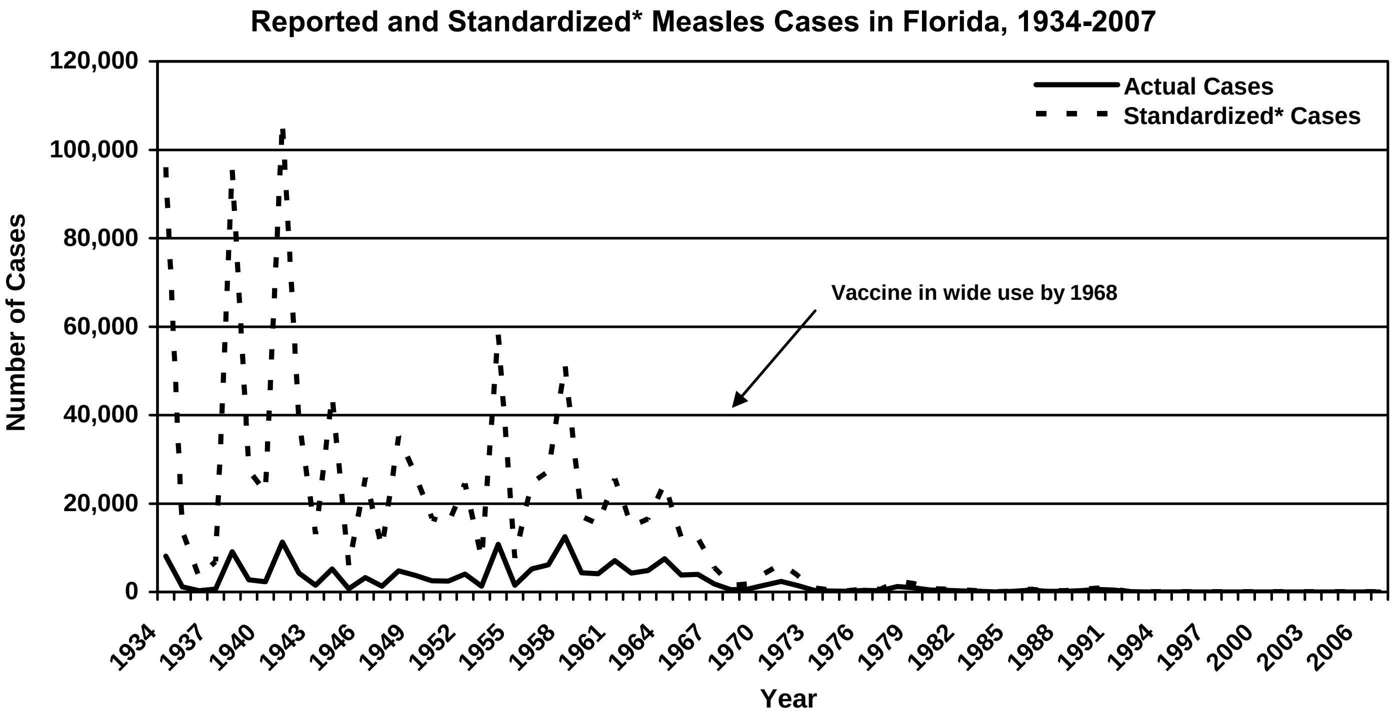


*Number of cases that would have occurred in Florida each year if Florida had a population of 18,762,014. See the paragraph preceding these charts for a more detailed description of these calculations.

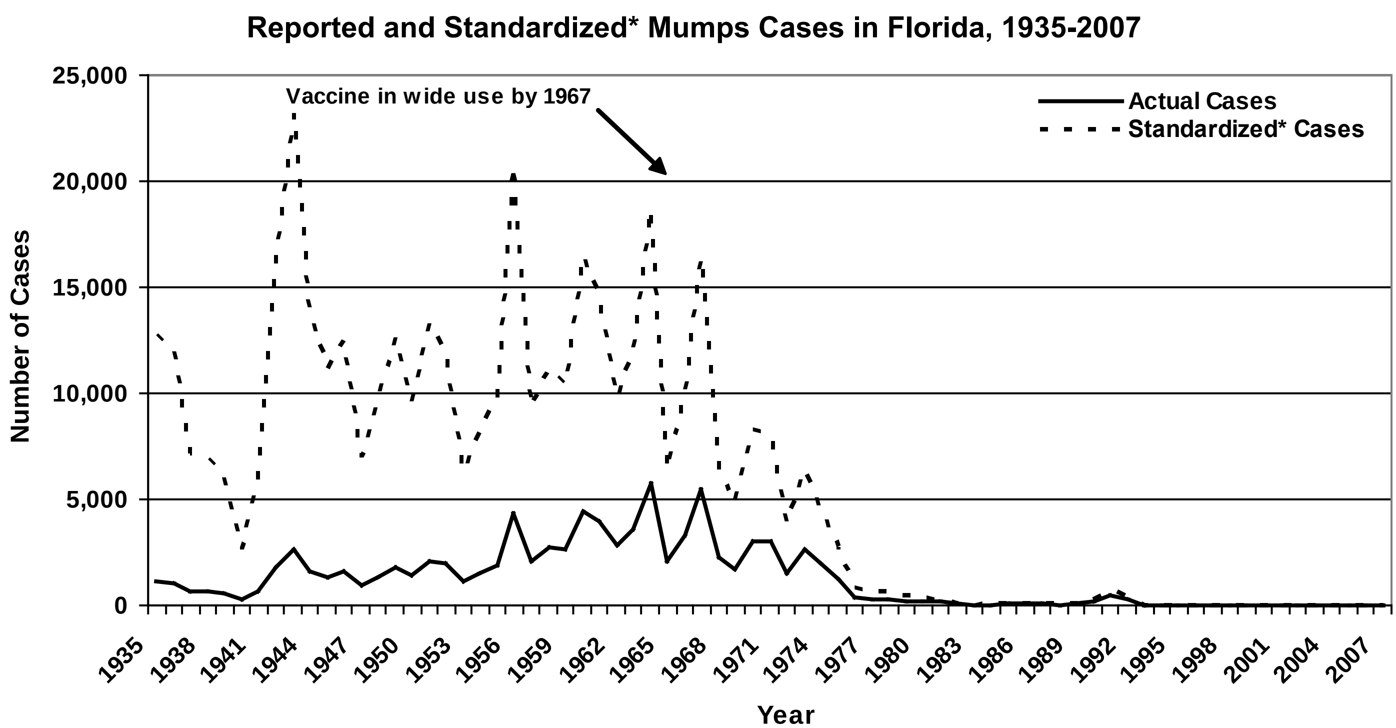
Reported and Standardized* Hepatitis B (Acute) Cases in Florida, 1970-2007



*Number of cases that would have occurred in Florida each year if Florida had a population of 18,762,014. See the paragraph preceding these charts for a more detailed description of these calculations.

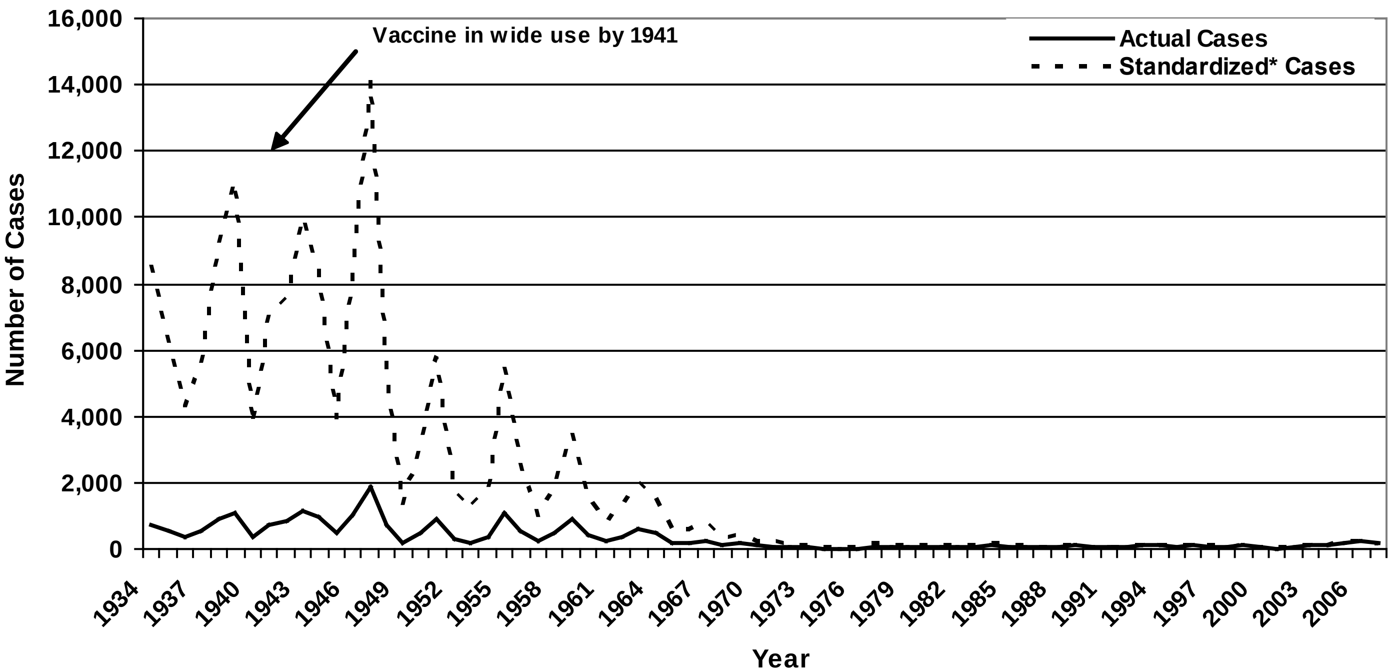


*Number of cases that would have occurred in Florida each year if Florida had a population of 18,762,014. See the paragraph preceding these charts for a more detailed description of these calculations.



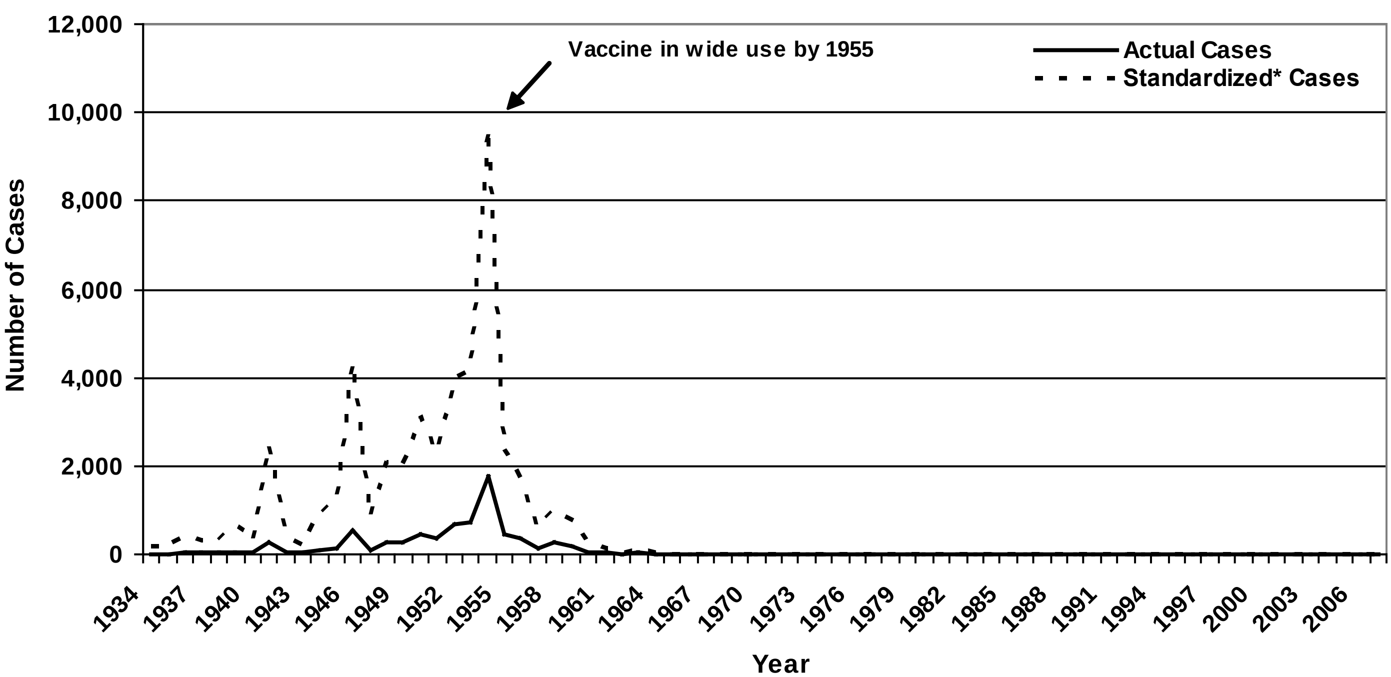
*Number of cases that would have occurred in Florida each year if Florida had a population of 18,762,014. See the paragraph preceding these charts for a more detailed description of these calculations.

Reported and Standardized* Pertussis Cases in Florida, 1934-2007



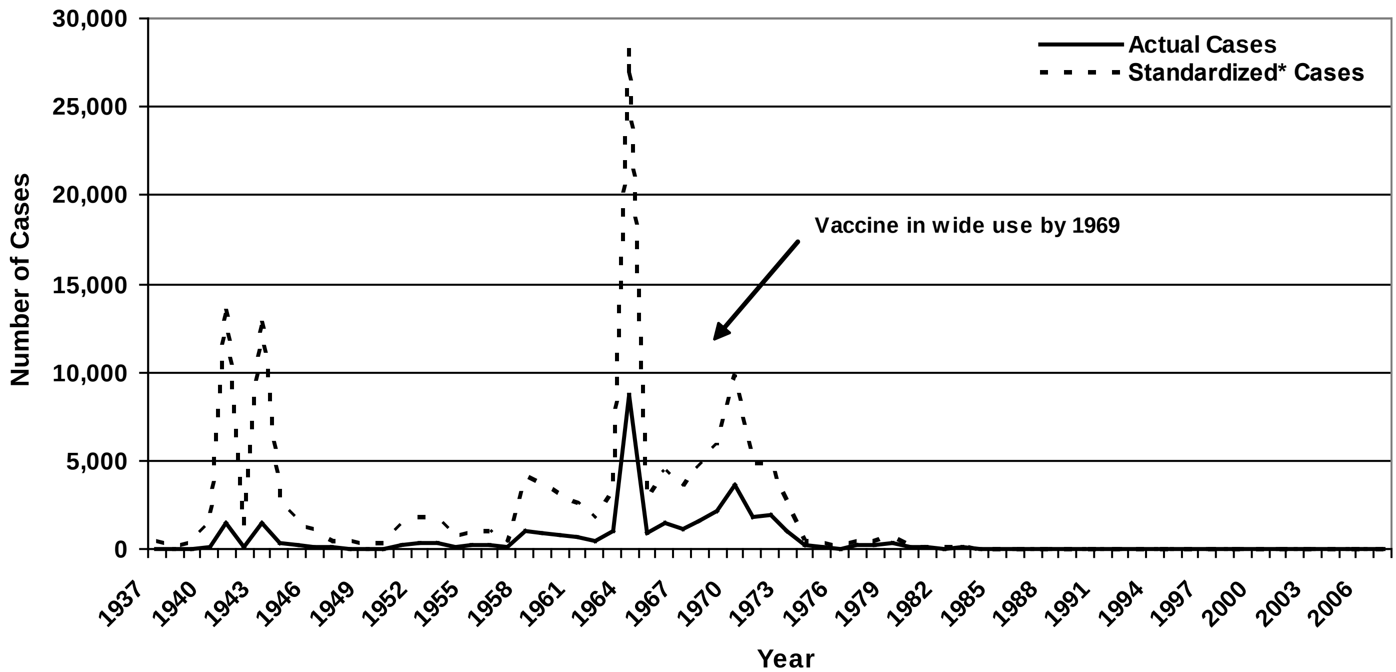
*Number of cases that would have occurred in Florida each year if Florida had a population of 18,762,014. See the paragraph preceding these charts for a more detailed description of these calculations.

Reported and Standardized* Polio Cases in Florida, 1934-2007



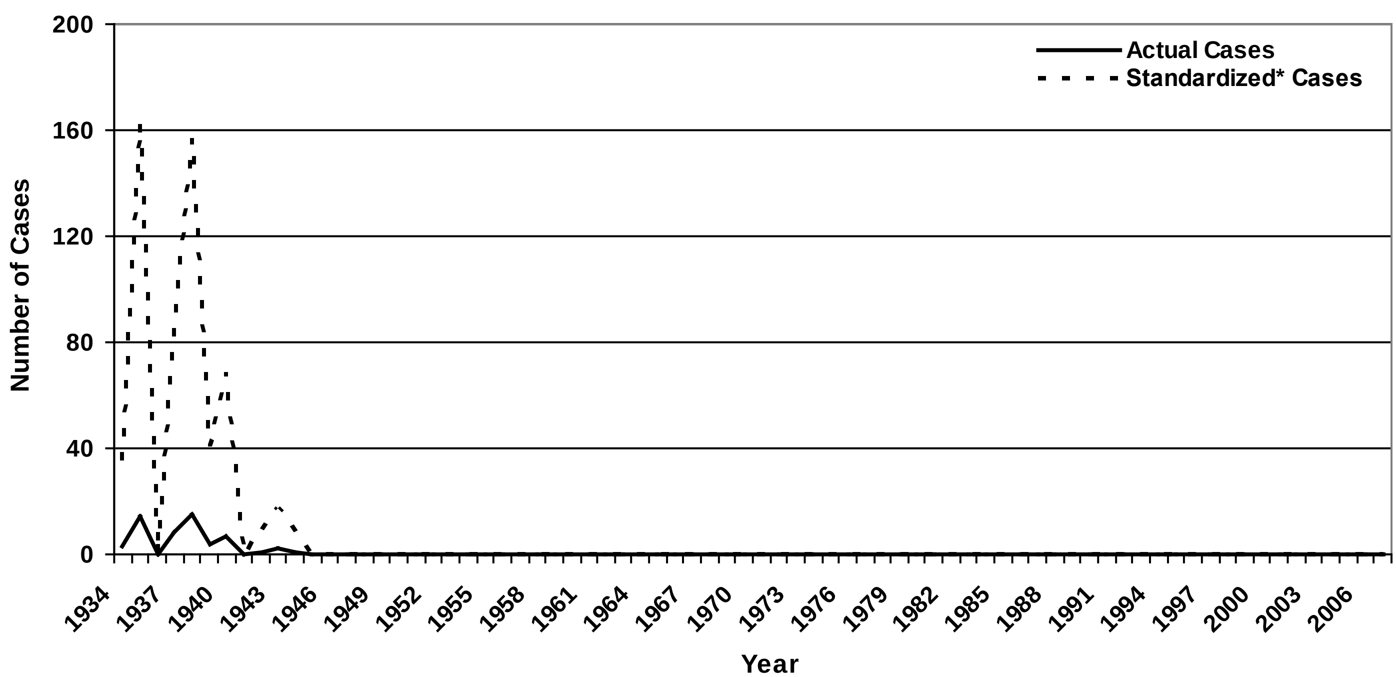
*Number of cases that would have occurred in Florida each year if Florida had a population of 18,762,014. See the paragraph preceding these charts for a more detailed description of these calculations.

Reported and Standardized* Rubella Cases in Florida, 1937-2007



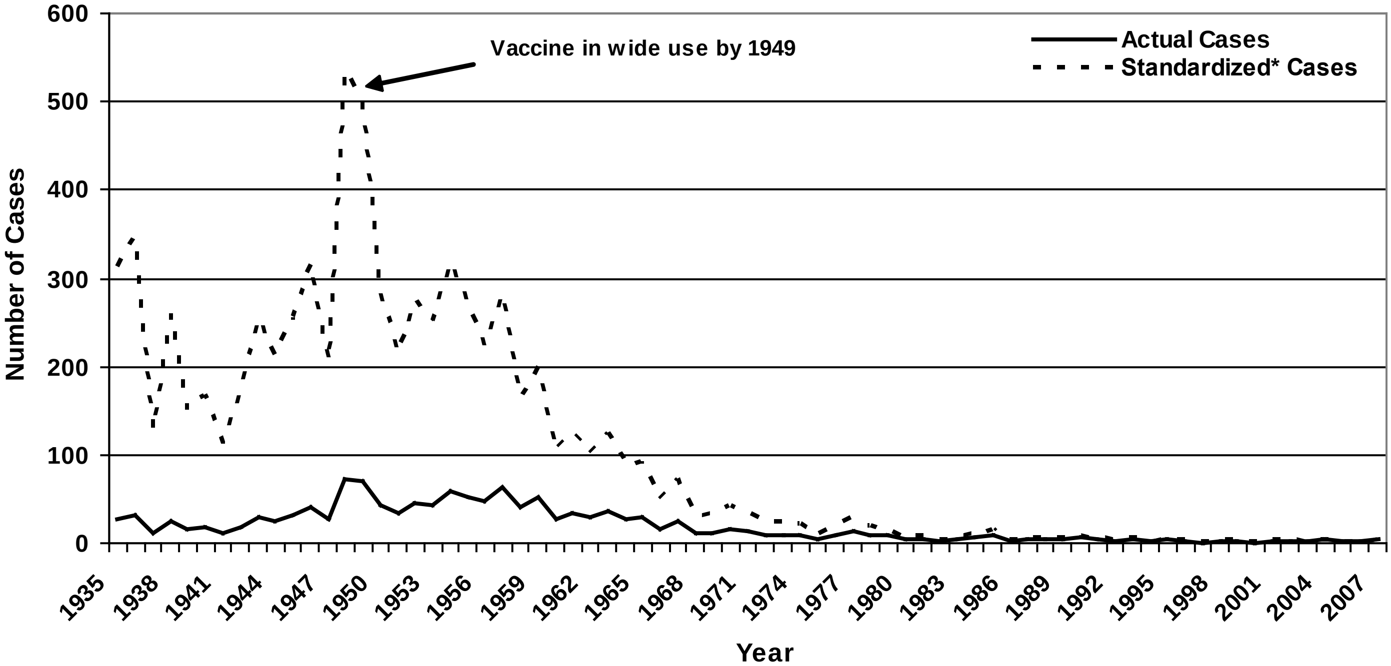
*Number of cases that would have occurred in Florida each year if Florida had a population of 18,762,014. See the paragraph preceding these charts for a more detailed description of these calculations.

Reported and Standardized* Smallpox Cases in Florida, 1934-2007



*Number of cases that would have occurred in Florida each year if Florida had a population of 18,762,014. See the paragraph preceding these charts for a more detailed description of these calculations.

Reported and Standardized* Tetanus Cases in Florida, 1935-2007



*Number of cases that would have occurred in Florida each year if Florida had a population of 18,762,014. See the paragraph preceding these charts for a more detailed description of these calculations.

Summary of Selected Notifiable Diseases and Conditions

Section 1

Table 1.1: Reported Confirmed and Probable Cases and Incidence Rate per 100,000 Population for Selected Notifiable Diseases, Florida, 1999-2008

Selected Notifiable Diseases	1999		2000		2001		2002		2003		2004		2005		2006		2007		2008	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
Acquired Immune Deficiency Syndrome	4,969	31.69	4,609	28.67	4,620	28.15	4,675	27.87	4,429	25.80	5,421	30.78	4,755	26.39	4,960	26.92	3,896	20.77	4,957	26.23
Campylobacteriosis	1,034	6.59	1,051	6.54	895	5.45	995	5.93	1,056	6.15	1,009	5.73	894	4.96	941	5.11	1,017	5.42	1,118	5.92
Chlamydia	31,410	200.32	33,390	207.72	37,625	229.25	42,058	250.76	42,381	246.92	42,554	241.60	43,372	240.71	48,955	265.74	57,580	306.90	70,751	374.41
Cryptosporidiosis	189	1.21	241	1.50	89	0.54	106	0.63	128	0.75	149	0.85	350	1.94	717	3.89	738	3.93	549	2.91
Cyclosporiasis	10	0.06	9	0.06	48	0.29	32	0.19	14	0.08	9	0.05	524	2.91	31	0.17	32	0.17	59	0.31
Escherichia coli, Shiga Toxin Producing[1]	86	0.55	112	0.70	66	0.40	89	0.53	72	0.42	78	0.44	114	0.63	38	0.21	47	0.25	65	0.34
Giardiasis	1,360	8.67	1,532	9.53	1,150	7.01	1,318	7.86	1,132	6.60	1,126	6.39	987	5.48	1,165	6.32	1,268	6.76	1,391	7.36
Gonorrhea	22,797	145.39	22,781	141.72	21,531	131.19	21,348	127.28	18,974	110.54	18,580	105.49	20,225	112.25	23,976	130.15	23,308	124.23	23,237	122.97
Hemophilus influenzae, Invasive[2]	49	0.31	72	0.45	70	0.43	82	0.49	99	0.58	99	0.56	117	0.65	142	0.77	127	0.68	162	0.86
Hepatitis A	855	5.45	657	4.09	847	5.16	1,056	6.30	399	2.32	295	1.67	289	1.60	233	1.26	171	0.91	165	0.87
Hepatitis B (+HBsAg in Pregnant Women)	252	7.45	512	14.83	437	12.53	631	17.93	555	15.39	599	16.35	530	14.16	448	11.78	644	16.85	599	15.69
Hepatitis B, Acute	551	3.51	610	3.79	502	3.06	543	3.24	631	3.68	527	2.99	510	2.83	446	2.42	366	1.95	358	1.89
Hepatitis C, Acute	55	0.35	47	0.29	43	0.26	76	0.45	69	0.40	53	0.30	39	0.22	49	0.27	46	0.25	53	0.28
Human Immunodeficiency Virus	6,539	41.70	5,788	36.01	5,917	36.05	6,602	39.36	6,198	36.11	5,987	33.99	5,514	30.60	5,224	28.36	6,235	33.23	7,588	40.16
Legionellosis	29	0.18	54	0.34	97	0.59	85	0.51	147	0.86	141	0.80	119	0.66	167	0.91	153	0.82	148	0.78
Listeriosis[3]	50	0.32	40	0.25	19	0.12	28	0.17	37	0.22	28	0.16	61	0.34	47	0.26	34	0.18	49	0.26
Lyme Disease	60	0.38	57	0.35	57	0.35	77	0.46	43	0.25	46	0.26	47	0.26	34	0.18	30	0.16	88	0.47
Malaria	97	0.62	90	0.56	61	0.37	76	0.45	92	0.54	93	0.53	68	0.38	61	0.33	56	0.30	65	0.34
Meningitis, Other	64	0.41	109	0.68	110	0.67	131	0.78	158	0.92	128	0.73	127	0.70	162	0.88	135	0.72	199	1.05
Meningitis, *Streptococcus pneumoniae*	100	0.64	113	0.70	52	0.32	66	0.39	57	0.33	56	0.32	58	0.32	73	0.40	67	0.36	41	0.22
Meningococcal Disease[4]	138	0.88	136	0.85	124	0.76	128	0.76	106	0.62	107	0.61	84	0.47	79	0.43	67	0.36	51	0.27
Pertussis	112	0.71	67	0.42	30	0.18	53	0.32	113	0.66	132	0.75	208	1.15	228	1.24	211	1.12	314	1.66
Rabies, Animal	186	NA	161	NA	157	NA	181	NA	188	NA	205	NA	201	NA	176	NA	128	NA	144	NA
Rabies, Possible Exposure	155	0.99	475	2.95	1,100	6.70	1,082	6.45	1,051	6.12	1,128	6.40	1,215	6.74	1,244	6.75	1,474	7.86	1,618	8.56
Salmonellosis	3,144	20.05	2,830	17.61	3,104	18.91	4,651	27.73	4,669	27.20	4,276	24.28	5,552	30.81	4,928	26.75	5,022	26.77	5,312	28.11
Shigellosis	1,709	10.90	1,522	9.47	1,052	6.41	2,538	15.13	2,845	16.58	965	5.48	1,270	7.05	1,646	8.93	2,288	12.19	801	4.24
Streptococcus pneumoniae, Invasive Disease, Drug-Resistant	711	4.53	1,162	7.23	799	4.87	610	3.64	606	3.53	581	3.30	614	3.41	774	4.20	725	3.86	792	4.19
Streptococcus pneumoniae, Invasive Disease, Drug-Susceptible	NR	-	NR	-	NR	-	NR	-	201	1.17	606	3.44	598	3.32	620	3.37	622	3.32	704	3.73
Streptococcal Disease, Invasive Group A	94	0.60	149	0.93	159	0.97	201	1.20	229	1.33	219	1.24	260	1.44	312	1.69	309	1.65	275	1.46
Syphilis	2,660	16.96	2,728	16.97	2,877	17.53	3,251	19.38	3,256	18.97	2,948	16.74	2,872	15.94	2,924	15.87	3,928	20.94	4,578	24.23
Toxoplasmosis	18	0.11	14	0.09	35	0.21	45	0.27	31	0.18	24	0.14	2	0.01	4	0.02	9	0.05	14	0.07
Tuberculosis	1,281	8.17	1,171	7.28	1,145	6.98	1,086	6.47	1,046	6.09	1,076	6.11	1,094	6.07	1,038	5.63	989	5.27	953	5.04
Vibrio Infections[5]	85	0.54	61	0.38	55	0.34	87	0.52	115	0.67	107	0.61	103	0.57	99	0.54	97	0.52	94	0.49
West Nile Virus	NR	-	NR	-	11	0.07	36	0.21	93	0.54	45	0.26	22	0.12	3	0.02	3	0.02	3	0.02

[1] Includes reported cases of *E. coli*, O157:H7, *E. coli*, serogrpouped non-O157, and *E. coli*, shiga toxin producing.
[2] Includes reported cases of *Hemophilus influenzae* presenting as cellulitis, epiglottitis, meningitis, bacterimia, and septic arthritis.
[3] Includes reported cases of listeriosis and cases of meningitis caused by *Listeria monocytogenes.*
[4] Includes reported cases of meningococcal meningitis, pneumonia caused by *Neisseria meningitidis*, meningococcal disease, and meningococcemia disseminated.
[5] Includes reported cases of *V. alginolyticus, V. cholerae* non-O1, *V. fluvialis, V. hollisae, V. mimicus, V. parahaemolyticus, V. vulnificus,* and *V.* other.
NA - Not applicable

Table 1.2: Reported Confirmed and Probable Cases of Notifiable Diseases of Infrequent Occurrence, Florida, 1999-2008

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Anaplasmosis, Human Granulocytic	NR	NR	-	1	5	3	1	1	3	2
Anthrax	-	-	2	-	-	-	-	-	-	-
Botulism, Foodborne	4	-	-	-	-	-	-	1	-	-
Botulism, Infant	-	-	-	-	-	1	1	-	1	1
Botulism, Other	-	-	-	-	-	2	-	-	-	-
Botulism, Wound	-	-	-	-	-	-	-	-	-	-
Brucellosis	3	6	5	6	10	8	3	5	10	10
California Serogroup Virus	-	-	-	-	-	4	-	1	1	1
Chancroid	2	-	2	7	2	1	1	1	3	-
Ciguatera	2	14	13	7	7	4	10	32	29	53
Creutzfeldt-Jakob Disease (CJD)	NR	NR	NR	NR	4	14	17	14	12	23
Dengue Fever	5	13	12	21	16	13	19	20	46	33
Diphtheria	-	-	-	-	-	-	-	-	-	-
Escherichia coli Shiga Toxin + (not serogrouped)	-	-	-	-	7	6	16	22	109	57
Eastern Equine Encephalitis	3	-	3	1	2	1	5	-	-	1
Ehrlichiosis, Human[1]	8	-	NR	NR	NR	NR	NR	NR	-	-
Ehrlichiosis, Human Monocytic	NR	10	8	4	8	4	4	5	18	10
Encephalitis, Other	19	19	12	20	10	8	8	5	18	5
Epsilon Toxin of *Clostridium perfringnes* [2]	NR	NR	NR	NR	-	-	-	-	-	-
Glanders	NR	NR	NR	NR	-	-	-	-	-	-
Granuloma Inguinale	-	-	-	-	-	-	-	-	-	-
Hantavirus Infection	-	-	-	-	-	-	-	-	-	-
Hemolytic Uremic Syndrome	8	20	5	5	6	6	20	5	6	5
Hemorrhagic Fever	-	-	-	-	-	-	-	-	-	-
Hepatitis B, Perinatal	2	2	7	6	2	-	2	6	2	3
Hepatitis Non-A or B	12	6	6	8	4	8	5	36	NR	NR
Hepatitis Unspecified, Acute	19	7	6	1	3	-	2	2	NR	NR
Hepatitis D	NR	NR	NR	NR	NR	NR	NR	NR	1	-
Hepatitis E	NR	NR	NR	NR	NR	NR	NR	NR	1	-
Hepatitis G	NR	NR	NR	NR	NR	NR	NR	NR	-	-
Leprosy (Hansen's disease)	3	4	1	4	9	5	2	7	10	10
Leptospirosis	1	3	1	-	1	1	2	2	1	-

[1] Includes codes for human ehrlichiosis (NR after 1999), ehrlichiosis caused by *E. ewingii*, and ehrlichiosis unspecified
[2] Epsilon toxin of *Clostridium perfringens* was no longer reportable after August of 2008
NR - Not Reportable

Table 1.2: Continued

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Lymphogranuloma venereum	-	1	2	4	2	-	3	-	-	-
Measles	2	2	-	3	-	1	-	4	5	1
Melioidosis	NR	NR	NR	NR	-	-	1	1	-	-
Meningitis, Group B *Streptococcus*	14	21	18	19	15	15	23	23	30	11
Mumps	17	7	8	7	7	9	8	15	21	16
Neurotoxic Shellfish Poisoning	-	-	-	-	-	-	4	16	1	-
Plague	-	-	-	-	-	-	-	-	-	-
Poliomyelitis	-	-	-	-	-	-	-	-	-	-
Psittacosis	1	4	1	3	3	1	-	1	-	2
Q Fever	-	-	1	2	6	2	1	8	2	1
Rabies, Human	-	-	-	-	-	1	-	-	-	-
Ricin Toxin	NR	NR	NR	NR	-	-	-	-	-	-
Rocky Mountain Spotted Fever	7	12	8	15	17	22	14	21	19	19
Rubella	1	2	3	5	-	-	-	1	-	3
Rubella, Congenital	-	1	-	-	-	-	-	-	-	-
Saxitoxin Poisoning	-	-	-	-	-	1	-	-	-	-
Smallpox	-	-	-	-	-	-	-	-	-	-
St. Louis Encephalitis	4	-	-	1	-	-	-	-	-	-
Staphylococcus aureus (GISA/VISA)	-	-	-	-	-	-	-	-	1	3
Staphylococcus aureus (GRSA/VRSA)	-	-	-	-	-	-	-	-	-	-
Staphylococcus Enterotoxin B	NR	NR	NR	NR	-	-	-	-	-	2
Tetanus	3	1	3	3	3	4	3	2	5	2
Trichinosis	1	1	-	-	-	-	1	1	-	1
Tularemia	-	-	-	-	-	-	1	-	-	-
Typhoid Fever	24	12	12	19	15	10	11	16	15	18
Typhus Fever	-	-	-	-	-	1	-	2	1	-
Vaccinia Disease	-	-	-	-	1	-	-	-	-	-
Venezuelan Equine Encephalitis	-	-	-	-	-	-	-	-	-	-
Vibrio cholerae Type O1	-	-	-	-	-	-	-	-	-	-
Western Equine Encephalitis	-	-	-	-	-	-	-	-	-	-
Yellow Fever	-	-	-	-	-	-	-	-	-	-

NR - Not Reportable

Table 1.3: Reported Confirmed and Probable Cases and Incidence Rate per 100,000 Population for Selected Notifiable Diseases by County of Residence, Florida, 2008

Selected Notifiable Diseases	Alachua County		Baker County		Bay County		Bradford County		Brevard County		Broward County		Calhoun County	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
Acquired Immune Deficiency Syndrome	43	17.21	2	7.72	16	9.48	3	10.24	46	8.25	895	50.42	-	-
Campylobacteriosis	30	12.01	2	7.72	11	6.52	1	3.41	14	2.51	120	6.76	-	-
Chlamydia	1,750	700.59	88	339.70	561	332.31	101	344.66	1,549	277.73	6,963	392.26	63	428.92
Cryptosporidiosis	13	5.20	-	-	8	4.74	4	13.65	7	1.26	55	3.10	-	-
Cyclosporiasis	1	0.40	-	-	-	-	-	-	1	0.18	1	0.06	-	-
Escherichia coli, Shiga Toxin Producing[1]	-	-	-	-	-	-	-	-	1	0.18	7	0.39	-	-
Giardiasis	14	5.60	5	19.30	10	5.92	-	-	37	6.63	106	5.97	-	-
Gonorrhea	559	223.79	13	50.18	251	148.68	37	126.26	398	71.36	2,316	130.47	40	272.33
Hemophilus influenzae, Invasive[2]	1	0.40	-	-	-	-	-	-	7	1.26	21	1.18	-	-
Hepatitis A	3	1.20	-	-	2	1.18	1	3.41	5	0.90	14	0.79	-	-
Hepatitis B (+HBsAg in Pregnant Women)	11	4.40	-	-	6	3.55	1	3.41	7	1.26	36	2.03	-	-
Hepatitis B, Acute	1	0.40	-	-	1	0.59	-	-	2	0.36	42	2.37	1	6.81
Hepatitis C, Acute	-	-	-	-	-	-	-	-	-	-	2	0.11	-	-
Human Immunodeficiency Virus	71	28.42	4	15.44	30	17.77	3	10.24	58	10.40	1,403	79.04	1	6.81
Legionellosis	-	-	-	-	1	0.59	-	-	6	1.08	15	0.85	-	-
Listeriosis[3]	-	-	-	-	-	-	-	-	1	0.18	6	0.34	-	-
Lyme disease	3	1.20	-	-	-	-	-	-	3	0.54	1	0.06	-	-
Malaria	3	1.20	-	-	-	-	-	-	2	0.36	12	0.68	-	-
Meningitis, Other (bacterial, cryptococcal, mycotic)	2	0.80	-	-	2	1.18	-	-	5	0.90	21	1.18	-	-
Meningitis, *Streptococcus pneumoniae*	-	-	-	-	2	1.18	-	-	-	-	5	0.28	-	-
Meningococcal Disease[4]	2	0.80	1	3.86	-	-	-	-	6	1.08	2	0.11	-	-
Pertussis	8	3.20	-	-	-	-	-	-	4	0.72	6	0.34	-	-
Rabies, Possible Exposure	33	13.21	13	50.18	27	15.99	3	10.24	82	14.70	24	1.35	-	-
Salmonellosis	84	33.63	13	50.18	91	53.90	18	61.43	226	40.52	416	23.44	1	6.81
Shigellosis	1	0.40	-	-	2	1.18	-	-	18	3.23	93	5.24	1	6.81
Streptococcus pneumoniae, Invasive Disease, Drug-Resistant	7	2.80	-	-	11	6.52	1	3.41	27	4.84	78	4.39	-	-
Streptococcus pneumoniae, Invasive Disease, Drug-Susceptible	16	6.41	2	7.72	10	5.92	2	6.83	28	5.02	62	3.49	1	6.81
Streptococcal Disease, Invasive Group A	-	-	-	-	5	2.96	2	6.83	6	1.08	25	1.41	-	-
Syphilis	24	9.61	2	7.72	10	5.92	2	6.83	22	3.94	767	43.21	2	13.62
Toxoplasmosis	-	-	-	-	-	-	1	3.41	-	-	-	-	-	-
Tuberculosis	10	4.00	-	-	9	5.33	2	6.83	10	1.79	85	4.79	1	6.81
Varicella	57	22.82	31	119.67	4	2.37	3	10.24	20	3.59	49	2.76	-	-
Vibrio Infections[5]	-	-	-	-	4	2.37	-	-	5	0.90	1	0.06	-	-
West Nile Virus	-	-	-	-	-	-	-	-	-	-	-	-	-	-

[1] Includes reported cases of *E. coli*, O157:H7; *E. coli*, serogrpouped non-O157; and *E. coli*, shiga toxin producing.
[2] Includes reported cases of *Hemophilus influenzae* presenting as cellulitis, epiglottitis, meningitis, bacterimia, and septic arthritis.
[3] Includes reported cases of listeriosis and cases of meningitis caused by *Listeria monocytogenes*.
[4] Includes reported cases of meningococcal meningitis, pneumonia caused by *Neisseria meningitidis*, meningococcal disease, and meningococcemia disseminated.
[5] Includes reported cases of *V. alginolyticus, V. cholerae* non-O1, *V. fluvialis, V. hollisae, V. mimicus, V. parahaemolyticus, V. vulnificus*, and *V.* other.

Cont'd Table 1.3: Reported Confirmed and Probable Cases and Incidence Rate per 100,000 Population for Selected Notifiable Diseases by County of Residence, Florida, 2008

Selected Notifiable Diseases	Charlotte County		Citrus County		Clay County		Collier County		Columbia County		DeSoto County		Dixie County	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
Acquired Immune Deficiency Syndrome	18	10.81	5	3.52	12	6.33	44	12.92	10	15.05	8	23.33	3	18.84
Campylobacteriosis	3	1.80	5	3.52	10	5.27	58	17.03	7	10.54	3	8.75	5	31.39
Chlamydia	227	136.36	278	195.58	574	302.64	763	224.02	200	301.07	142	414.07	51	320.21
Cryptosporidiosis	-	-	1	0.70	29	15.29	7	2.06	9	13.55	2	5.83	-	-
Cyclosporiasis	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Escherichia coli, Shiga Toxin Producing[1]	-	-	1	0.70	-	-	2	0.59	1	1.51	1	2.92	-	-
Giardiasis	2	1.20	7	4.92	16	8.44	16	4.70	9	13.55	1	2.92	4	25.11
Gonorrhea	46	27.63	45	31.66	158	83.30	94	27.60	65	97.85	32	93.31	19	119.29
Hemophilus influenzae, Invasive[2]	2	1.20	4	2.81	1	0.53	2	0.59	-	-	1	2.92	-	-
Hepatitis A	-	-	-	-	1	0.53	10	2.94	1	1.51	-	-	-	-
Hepatitis B (+HBsAg in Pregnant Women)	1	0.60	2	1.41	4	2.11	16	4.70	2	3.01	1	2.92	-	-
Hepatitis B, Acute	-	-	2	1.41	-	-	2	0.59	1	1.51	-	-	-	-
Hepatitis C, Acute	1	0.60	-	-	2	1.05	-	-	-	-	-	-	-	-
Human Immunodeficiency Virus	27	16.22	18	12.66	25	13.18	57	16.74	12	18.06	10	29.16	2	12.56
Legionellosis	2	1.20	-	-	1	0.53	6	1.76	-	-	-	-	-	-
Listeriosis[3]	-	-	1	0.70	-	-	-	-	-	-	-	-	-	-
Lyme disease	-	-	-	-	-	-	-	-	-	-	1	2.92	-	-
Malaria	1	0.60	-	-	1	0.53	1	0.29	-	-	-	-	-	-
Meningitis, Other (bacterial, cryptococcal, mycotic)	-	-	1	0.70	1	0.53	3	0.88	1	1.51	-	-	-	-
Meningitis, *Streptococcus pneumoniae*	-	-	-	-	1	0.53	-	-	-	-	-	-	-	-
Meningococcal Disease[4]	1	0.60	-	-	-	-	-	-	-	-	1	2.92	-	-
Pertussis	3	1.80	1	0.70	10	5.27	12	3.52	3	4.52	-	-	-	-
Rabies, Possible Exposure	33	19.82	48	33.77	23	12.13	52	15.27	11	16.56	-	-	-	-
Salmonellosis	34	20.42	39	27.44	108	56.94	83	24.37	36	54.19	10	29.16	2	12.56
Shigellosis	1	0.60	-	-	2	1.05	7	2.06	-	-	1	2.92	1	6.28
Streptococcus pneumoniae, Invasive Disease, Drug-Resistant	2	1.20	9	6.33	12	6.33	10	2.94	2	3.01	-	-	2	12.56
Streptococcus pneumoniae, Invasive Disease, Drug-Susceptible	1	0.60	2	1.41	10	5.27	7	2.06	5	7.53	-	-	-	-
Streptococcal Disease, Invasive Group A	-	-	5	3.52	8	4.22	9	2.64	-	-	-	-	-	-
Syphilis	9	5.41	1	0.70	9	4.75	66	19.38	7	10.54	4	11.66	1	6.28
Toxoplasmosis	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tuberculosis	6	3.60	3	2.11	2	1.05	26	7.63	4	6.02	3	8.75	-	-
Varicella	44	26.43	33	23.22	25	13.18	48	14.09	5	7.53	19	55.40	-	-
Vibrio Infections[5]	-	-	1	0.70	1	0.53	4	1.17	-	-	-	-	-	-
West Nile Virus	-	-	-	-	-	-	-	-	-	-	-	-	-	-

[1] Includes reported cases of *E. coli*, O157:H7; *E. coli*, serogrpouped non-O157; and *E. coli*, shiga toxin producing.
[2] Includes reported cases of *Hemophilus influenzae* presenting as cellulitis, epiglottitis, meningitis, bacterimia, and septic arthritis.
[3] Includes reported cases of listeriosis and cases of meningitis caused by *Listeria monocytogenes*.
[4] Includes reported cases of meningococcal meningitis, pneumonia caused by *Neisseria meningitidis*, meningococcal disease, and meningococcemia disseminated.
[5] Includes reported cases of *V. alginolyticus, V. cholerae* non-O1, *V. fluvialis, V. hollisae, V. mimicus, V. parahaemolyticus, V. vulnificus*, and *V.* other.

Cont'd Table 1.3: Reported Confirmed and Probable Cases and Incidence Rate per 100,000 Population for Selected Notifiable Diseases by County of Residence, Florida, 2008

Selected Notifiable Diseases	Duval County		Escambia County		Flagler County		Franklin County		Gadsden County		Gilchrist County		Glades County	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
Acquired Immune Deficiency Syndrome	284	31.26	73	23.40	4	4.13	-	-	15	29.91	-	-	1	8.85
Campylobacteriosis	77	8.48	24	7.69	2	2.06	-	-	2	3.99	4	23.02	1	8.85
Chlamydia	6,124	674.17	1,834	587.96	227	234.23	58	472.08	548	1,092.68	32	184.17	25	221.22
Cryptosporidiosis	68	7.49	3	0.96	1	1.03	1	8.14	-	-	3	17.27	-	-
Cyclosporiasis	3	0.33	-	-	-	-	-	-	-	-	-	-	-	-
Escherichia coli, Shiga Toxin Producing[1]	7	0.77	1	0.32	-	-	-	-	-	-	-	-	-	-
Giardiasis	55	6.05	9	2.89	-	-	3	24.42	5	9.97	6	34.53	-	-
Gonorrhea	2,655	292.28	721	231.15	46	47.47	25	203.48	262	522.41	7	40.29	9	79.64
Hemophilus influenzae, Invasive[2]	9	0.99	6	1.92	1	1.03	-	-	-	-	-	-	-	-
Hepatitis A	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hepatitis B (+HBsAg in Pregnant Women)	58	6.39	18	5.77	1	1.03	-	-	1	1.99	-	-	-	-
Hepatitis B, Acute	28	3.08	3	0.96	-	-	-	-	1	1.99	1	5.76	1	8.85
Hepatitis C, Acute	-	-	-	-	-	-	-	-	-	-	1	5.76	-	-
Human Immunodeficiency Virus	375	41.28	72	23.08	11	11.35	2	16.28	27	53.84	2	11.51	1	8.85
Legionellosis	6	0.66	-	-	-	-	-	-	1	1.99	-	-	-	-
Listeriosis[3]	1	0.11	-	-	-	-	-	-	-	-	-	-	-	-
Lyme disease	3	0.33	3	0.96	3	3.10	1	8.14	-	-	-	-	-	-
Malaria	-	-	-	-	-	-	1	8.14	-	-	-	-	-	-
Meningitis, Other (bacterial, cryptococcal, mycotic)	13	1.43	13	4.17	-	-	-	-	-	-	-	-	-	-
Meningitis, *Streptococcus pneumoniae*	2	0.22	3	0.96	-	-	-	-	-	-	-	-	-	-
Meningococcal Disease[4]	2	0.22	1	0.32	-	-	-	-	-	-	1	5.76	-	-
Pertussis	70	7.71	3	0.96	1	1.03	-	-	-	-	1	5.76	-	-
Rabies, Possible Exposure	113	12.44	43	13.79	8	8.25	-	-	4	7.98	4	23.02	-	-
Salmonellosis	530	58.35	83	26.61	12	12.38	2	16.28	20	39.88	6	34.53	3	26.55
Shigellosis	38	4.18	144	46.17	1	1.03	-	-	1	1.99	0	0.00	-	-
Streptococcus pneumoniae, Invasive Disease, Drug-Resistant	48	5.28	25	8.01	4	4.13	-	-	-	-	1	5.76	-	-
Streptococcus pneumoniae, Invasive Disease, Drug-Susceptible	40	4.40	40	12.82	2	2.06	-	-	2	3.99	2	11.51	1	8.85
Streptococcal Disease, Invasive Group A	25	2.75	7	2.24	2	2.06	-	-	2	3.99	-	-	-	-
Syphilis	280	30.82	38	12.18	3	3.10	1	8.14	11	21.93	1	5.76	4	35.40
Toxoplasmosis	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tuberculosis	102	11.23	10	3.21	1	1.03	-	-	3	5.98	1	5.76	2	17.70
Varicella	47	5.17	192	61.55	11	11.35	1	8.14	2	3.99	-	-	1	8.85
Vibrio Infections[5]	3	0.33	2	0.64	1	1.03	-	-	1	1.99	-	-	-	-
West Nile Virus	-	-	2	0.64	-	-	-	-	-	-	-	-	-	-

[1] Includes reported cases of *E. coli*, O157:H7; *E. coli*, serogrpouped non-O157; and *E. coli*, shiga toxin producing.
[2] Includes reported cases of *Hemophilus influenzae* presenting as cellulitis, epiglottitis, meningitis, bacterimia, and septic arthritis.
[3] Includes reported cases of listeriosis and cases of meningitis caused by *Listeria monocytogenes*.
[4] Includes reported cases of meningococcal meningitis, pneumonia caused by *Neisseria meningitidis*, meningococcal disease, and meningococcemia disseminated.
[5] Includes reported cases of *V. alginolyticus, V. cholerae* non-O1, *V. fluvialis, V. hollisae, V. mimicus, V. parahaemolyticus, V. vulnificus*, and *V.* other.

Cont'd Table 1.3: Reported Confirmed and Probable Cases and Incidence Rate per 100,000 Population for Selected Notifiable Diseases by County of Residence, Florida, 2008

Selected Notifiable Diseases	Gulf County		Hamilton County		Hardee County		Hendry County		Hernando County		Highlands County		Hillsborough County	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
Acquired Immune Deficiency Syndrome	-	-	-	-	5	18.08	8	19.85	8	4.84	23	23.06	324	26.78
Campylobacteriosis	2	11.76	1	6.77	2	7.23	2	4.96	5	3.02	-	-	82	6.78
Chlamydia	41	241.16	86	582.54	114	412.30	187	464.08	289	174.80	318	318.77	6,250	516.54
Cryptosporidiosis	-	-	1	6.77	2	7.23	1	2.48	4	2.42	-	-	33	2.73
Cyclosporiasis	-	-	-	-	-	-	-	-	1	0.60	-	-	7	0.58
Escherichia coli, Shiga Toxin Producing[1]	-	-	-	-	-	-	-	-	-	-	2	2.00	2	0.17
Giardiasis	1	5.88	5	33.87	13	47.02	2	4.96	4	2.42	1	1.00	90	7.44
Gonorrhea	10	58.82	17	115.15	17	61.48	35	86.86	62	37.50	73	73.18	2,088	172.57
Hemophilus influenzae, Invasive[2]	-	-	-	-	1	3.62	-	-	3	1.81	1	1.00	14	1.16
Hepatitis A	-	-	-	-	-	-	-	-	-	-	-	-	15	1.24
Hepatitis B (+HBsAg in Pregnant Women)	-	-	-	-	-	-	2	4.96	-	-	3	3.01	57	4.71
Hepatitis B, Acute	-	-	1	6.77	1	3.62	-	-	-	-	3	3.01	38	3.14
Hepatitis C, Acute	-	-	-	-	1	3.62	-	-	-	-	-	-	4	0.33
Human Immunodeficiency Virus	-	-	6	40.64	7	25.32	11	27.30	22	13.31	25	25.06	455	37.60
Legionellosis	-	-	-	-	1	3.62	2	4.96	-	-	1	1.00	11	0.91
Listeriosis[3]	-	-	-	-	-	-	-	-	1	0.60	-	-	1	0.08
Lyme disease	-	-	-	-	-	-	-	-	2	1.21	-	-	2	0.17
Malaria	-	-	-	-	-	-	-	-	-	-	-	-	4	0.33
Meningitis, Other (bacterial, cryptococcal, mycotic)	-	-	-	-	2	7.23	-	-	-	-	1	1.00	21	1.74
Meningitis, *Streptococcus pneumoniae*	-	-	-	-	-	-	-	-	-	-	-	-	1	0.08
Meningococcal Disease[4]	-	-	-	-	-	-	-	-	2	1.21	-	-	2	0.17
Pertussis	-	-	1	6.77	-	-	1	2.48	1	0.60	1	1.00	28	2.31
Rabies, Possible Exposure	-	-	6	40.64	6	21.70	-	-	14	8.47	19	19.05	15	1.24
Salmonellosis	8	47.06	6	40.64	15	54.25	18	44.67	32	19.36	26	26.06	242	20.00
Shigellosis	-	-	-	-	1	3.62	-	-	1	0.60	-	-	30	2.48
Streptococcus pneumoniae, Invasive Disease, Drug-Resistant	-	-	1	6.77	2	7.23	1	2.48	10	6.05	4	4.01	55	4.55
Streptococcus pneumoniae, Invasive Disease, Drug-Susceptible	3	17.65	2	13.55	-	-	-	-	13	7.86	6	6.01	28	2.31
Streptococcal Disease, Invasive Group A	-	-	-	-	-	-	1	2.48	1	0.60	2	2.00	10	0.83
Syphilis	3	17.65	11	74.51	8	28.93	5	12.41	8	4.84	5	5.01	503	41.57
Toxoplasmosis	-	-	-	-	-	-	-	-	-	-	1	1.00	2	0.17
Tuberculosis	-	-	-	-	3	10.85	6	14.89	4	2.42	3	3.01	69	5.70
Varicella	3	17.65	4	27.09	11	39.78	16	39.71	14	8.47	16	16.04	62	5.12
Vibrio Infections[5]	-	-	-	-	-	-	-	-	-	-	-	-	2	0.17
West Nile Virus	-	-	-	-	-	-	-	-	-	-	-	-	-	-

[1] Includes reported cases of *E. coli*, O157:H7; *E. coli*, serogrpouped non-O157; and *E. coli*, shiga toxin producing.
[2] Includes reported cases of *Hemophilus influenzae* presenting as cellulitis, epiglottitis, meningitis, bacterimia, and septic arthritis.
[3] Includes reported cases of listeriosis and cases of meningitis caused by *Listeria monocytogenes*.
[4] Includes reported cases of meningococcal meningitis, pneumonia caused by *Neisseria meningitidis*, meningococcal disease, and meningococcemia disseminated.
[5] Includes reported cases of *V. alginolyticus, V. cholerae* non-O1, *V. fluvialis, V. hollisae, V. mimicus, V. parahaemolyticus, V. vulnificus*, and *V.* other.

Cont'd Table 1.3: Reported Confirmed and Probable Cases and Incidence Rate per 100,000 Population for Selected Notifiable Diseases by County of Residence, Florida, 2008

Selected Notifiable Diseases	Holmes County		Indian River County		Jackson County		Jefferson County		Lafayette County		Lake County		Lee County	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
Acquired Immune Deficiency Syndrome	-	-	10	7.02	4	7.83	4	2.75	-	-	34	11.60	104	16.39
Campylobacteriosis	1	5.15	3	2.11	1	1.96	1	0.69	-	-	8	2.73	75	11.82
Chlamydia	46	237.04	473	332.04	205	401.13	91	62.49	15	175.01	743	253.40	2,022	318.60
Cryptosporidiosis	1	5.15	6	4.21	2	3.91	1	0.69	-	-	3	1.02	18	2.84
Cyclosporiasis	-	-	1	0.70	-	-	-	-	-	-	-	-	-	-
Escherichia coli, Shiga Toxin Producing[1]	-	-	-	-	-	-	-	-	-	-	-	-	5	0.79
Giardiasis	2	10.31	14	9.83	1	1.96	3	2.06	1	11.67	22	7.50	41	6.46
Gonorrhea	12	61.84	222	155.84	113	221.11	22	15.11	3	35.00	251	85.60	474	74.69
Hemophilus influenzae, Invasive[2]	-	-	-	-	-	-	-	-	-	-	2	0.68	3	0.47
Hepatitis A	-	-	1	0.70	-	-	-	-	-	-	2	0.68	6	0.95
Hepatitis B (+HBsAg in Pregnant Women)	-	-	1	0.70	-	-	-	-	-	-	4	1.36	19	2.99
Hepatitis B, Acute	1	5.15	1	0.70	-	-	-	-	-	-	1	0.34	7	1.10
Hepatitis C, Acute	-	-	1	0.70	-	-	-	-	-	-	1	0.34	3	0.47
Human Immunodeficiency Virus	5	25.77	20	14.04	15	29.35	3	2.06	3	35.00	36	12.28	159	25.05
Legionellosis	-	-	-	-	-	-	-	-	-	-	3	1.02	9	1.42
Listeriosis[3]	-	-	-	-	-	-	-	-	-	-	1	0.34	4	0.63
Lyme disease	-	-	3	2.11	-	-	-	-	-	-	-	-	3	0.47
Malaria	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Meningitis, Other (bacterial, cryptococcal, mycotic)	-	-	1	0.70	-	-	-	-	-	-	-	-	4	0.63
Meningitis, *Streptococcus pneumoniae*	-	-	-	-	-	-	-	-	-	-	-	-	1	0.16
Meningococcal Disease[4]	-	-	-	-	-	-	-	-	-	-	-	-	2	0.32
Pertussis	1	5.15	-	-	-	-	-	-	-	-	3	1.02	6	0.95
Rabies, Possible Exposure	-	-	15	10.53	5	9.78	2	1.37	1	11.67	33	11.25	90	14.18
Salmonellosis	8	41.22	42	29.48	7	13.70	5	3.43	-	-	90	30.69	233	36.71
Shigellosis	-	-	24	16.85	1	1.96	1	0.69	-	-	10	3.41	24	3.78
Streptococcus pneumoniae, Invasive Disease, Drug-Resistant	-	-	-	-	3	5.87	2	1.37	-	-	18	6.14	22	3.47
Streptococcus pneumoniae, Invasive Disease, Drug-Susceptible	1	5.15	2	1.40	7	13.70	1	0.69	1	11.67	11	3.75	25	3.94
Streptococcal Disease, Invasive Group A	1	5.15	1	0.70	-	-	-	-	-	-	7	2.39	8	1.26
Syphilis	2	10.31	20	14.04	10	19.57	1	0.69	2	23.33	25	8.53	82	12.92
Toxoplasmosis	-	-	-	-	-	-	-	-	-	-	-	-	1	0.16
Tuberculosis	-	-	2	1.40	1	1.96	1	0.69	-	-	1	0.34	32	5.04
Varicella	2	10.31	9	6.32	1	1.96	-	-	25	291.68	35	11.94	15	2.36
Vibrio Infections[5]	-	-	3	2.11	-	-	1	0.69	-	-	1	0.34	6	0.95
West Nile Virus	-	-	-	-	-	-	-	-	-	-	-	-	-	-

[1] Includes reported cases of *E. coli*, O157:H7, *E. coli*, serogrpouped non-O157, and *E. coli*, shiga toxin producing.
[2] Includes reported cases of *Hemophilus influenzae* presenting as cellulitis, epiglottitis, meningitis, bacterimia, and septic arthritis.
[3] Includes reported cases of listeriosis and cases of meningitis caused by *Listeria monocytogenes*.
[4] Includes reported cases of meningococcal meningitis, pneumonia caused by *Neisseria meningitidis*, meningococcal disease, and meningococcemia disseminated.
[5] Includes reported cases of *V. alginolyticus, V. cholerae* non-O1, *V. fluvialis, V. hollisae, V. mimicus, V. parahaemolyticus, V. vulnificus*, and *V.* other.

Cont'd Table 1.3: Reported Confirmed and Probable Cases and Incidence Rate per 100,000 Population for Selected Notifiable Diseases by County of Residence, Florida, 2008

Selected Notifiable Diseases	Leon County		Levy County		Liberty County		Madison County		Manatee County		Marion County		Martin County	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
Acquired Immune Deficiency Syndrome	59	21.55	1	2.46	1	12.87	7	34.97	45	14.00	57	17.18	14	9.67
Campylobacteriosis	17	6.21	3	7.38	-	-	-	-	9	2.80	5	1.51	5	3.45
Chlamydia	2,827	1,032.73	167	410.55	36	463.50	123	614.45	1,102	342.96	1,203	362.52	266	183.78
Cryptosporidiosis	6	2.19	1	2.46	-	-	-	-	4	1.24	3	0.90	3	2.07
Cyclosporiasis	1	0.37	-	-	-	-	-	-	1	0.31	1	0.30	-	-
Escherichia coli, Shiga Toxin Producing[1]	1	0.37	-	-	-	-	-	-	-	-	-	-	1	0.69
Giardiasis	33	12.06	1	2.46	1	12.87	-	-	10	3.11	16	4.82	6	4.15
Gonorrhea	1,050	383.57	57	140.13	12	154.50	23	114.90	454	141.29	381	114.81	43	29.71
Hemophilus influenzae, Invasive[2]	1	0.37	-	-	-	-	-	-	3	0.93	5	1.51	-	-
Hepatitis A	1	0.37	-	-	-	-	-	-	8	2.49	4	1.21	4	2.76
Hepatitis B (+HBsAg in Pregnant Women)	5	1.83	-	-	-	-	-	-	8	2.49	13	3.92	4	2.76
Hepatitis B, Acute	3	1.10	-	-	-	-	-	-	13	4.05	5	1.51	2	1.38
Hepatitis C, Acute	-	-	-	-	-	-	-	-	-	-	2	0.60	3	2.07
Human Immunodeficiency Virus	89	32.51	3	7.38	1	12.87	4	19.98	64	19.92	62	18.68	24	16.58
Legionellosis	1	0.37	1	2.46	-	-	-	-	3	0.93	2	0.60	1	0.69
Listeriosis[3]	-	-	-	-	-	-	-	-	1	0.31	-	-	1	0.69
Lyme disease	-	-	-	-	-	-	-	-	3	0.93	5	1.51	2	1.38
Malaria	2	0.73	-	-	-	-	-	-	-	-	-	-	-	-
Meningitis, Other (bacterial, cryptococcal, mycotic)	-	-	-	-	-	-	-	-	5	1.56	5	1.51	1	0.69
Meningitis, *Streptococcus pneumoniae*	-	-	-	-	-	-	-	-	1	0.31	-	-	-	-
Meningococcal Disease[4]	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pertussis	4	1.46	-	-	-	-	-	-	1	0.31	1	0.30	-	-
Rabies, Possible Exposure	43	15.71	3	7.38	-	-	-	-	37	11.51	70	21.09	11	7.60
Salmonellosis	117	42.74	13	31.96	-	-	-	-	84	26.14	75	22.60	33	22.80
Shigellosis	8	2.92	1	2.46	-	-	-	-	14	4.36	5	1.51	2	1.38
Streptococcus pneumoniae, Invasive Disease, Drug-Resistant	6	2.19	-	-	-	-	-	-	12	3.73	16	4.82	2	1.38
Streptococcus pneumoniae, Invasive Disease, Drug-Susceptible	9	3.29	-	-	-	-	1	5.00	15	4.67	16	4.82	4	2.76
Streptococcal Disease, Invasive Group A	4	1.46	-	-	-	-	-	-	6	1.87	3	0.90	-	-
Syphilis	40	14.61	1	2.46	4	51.50	5	24.98	31	9.65	34	10.25	12	8.29
Toxoplasmosis	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tuberculosis	9	3.29	4	9.83	-	-	3	14.99	14	4.36	10	3.01	7	4.84
Varicella	2	0.73	11	27.04	-	-	-	-	17	5.29	14	4.22	20	13.82
Vibrio Infections[5]	2	0.73	-	-	-	-	-	-	5	1.56	3	0.90	1	0.69
West Nile Virus	-	-	-	-	-	-	-	-	-	-	-	-	-	-

[1] Includes reported cases of *E. coli*, O157:H7; *E. coli*, serogrpouped non-O157; and *E. coli*, shiga toxin producing.
[2] Includes reported cases of *Hemophilus influenzae* presenting as cellulitis, epiglottitis, meningitis, bacterimia, and septic arthritis.
[3] Includes reported cases of listeriosis and cases of meningitis caused by *Listeria monocytogenes*.
[4] Includes reported cases of meningococcal meningitis, pneumonia caused by *Neisseria meningitidis*, meningococcal disease, and meningococcemia disseminated.
[5] Includes reported cases of *V. alginolyticus, V. cholerae* non-O1, *V. fluvialis, V. hollisae, V. mimicus, V. parahaemolyticus, V. vulnificus*, and *V.* other.

Cont'd Table 1.3: Reported Confirmed and Probable Cases and Incidence Rate per 100,000 Population for Selected Notifiable Diseases by County of Residence, Florida, 2008

Selected Notifiable Diseases	Miami-Dade County		Monroe County		Nassau County		Okaloosa County		Okeechobee County		Orange County		Osceola County	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
Acquired Immune Deficiency Syndrome	1,097	44.26	40	51.18	4	5.68	17	8.55	4	10.23	259	23.06	38	13.91
Campylobacteriosis	154	6.21	2	2.56	9	12.78	7	3.52	5	12.78	42	3.74	12	4.39
Chlamydia	7,547	304.49	107	136.90	217	308.03	705	354.48	159	406.48	5,744	511.34	1,074	393.02
Cryptosporidiosis	67	2.70	3	3.84	5	7.10	3	1.51	-	-	28	2.49	4	1.46
Cyclosporiasis	11	0.44	-	-	-	-	1	0.50	-	-	1	0.09	1	0.37
Escherichia coli, Shiga Toxin Producing[1]	7	0.28	-	-	-	-	2	1.01	1	2.56	3	0.27	-	-
Giardiasis	312	12.59	14	17.91	8	11.36	8	4.02	5	12.78	90	8.01	9	3.29
Gonorrhea	2,112	85.21	15	19.19	70	99.37	197	99.05	15	38.35	2,069	184.19	162	59.28
Hemophilus influenzae, Invasive[2]	16	0.65	-	-	-	-	1	0.50	-	-	8	0.71	2	0.73
Hepatitis A	29	1.17	1	1.28	-	-	-	-	-	-	6	0.53	3	1.10
Hepatitis B (+HBsAg in Pregnant Women)	26	1.05	4	5.12	2	2.84	1	0.50	1	2.56	78	6.94	15	5.49
Hepatitis B, Acute	17	0.69	3	3.84	2	2.84	1	0.50	1	2.56	42	3.74	7	2.56
Hepatitis C, Acute	-	-	-	-	2	2.84	-	-	-	-	7	0.62	1	0.37
Human Immunodeficiency Virus	1,587	64.03	30	38.38	8	11.36	22	11.06	8	20.45	585	52.08	82	30.01
Legionellosis	10	0.40	-	-	-	-	1	0.50	-	-	15	1.34	1	0.37
Listeriosis[3]	7	0.28	-	-	-	-	1	0.50	-	-	1	0.09	-	-
Lyme disease	7	0.28	1	1.28	-	-	-	-	-	-	3	0.27	-	-
Malaria	13	0.52	-	-	-	-	1	0.50	-	-	8	0.71	-	-
Meningitis, Other (bacterial, cryptococcal, mycotic)	20	0.81	-	-	2	2.84	-	-	-	-	29	2.58	1	0.37
Meningitis, *Streptococcus pneumoniae*	3	0.12	-	-	-	-	-	-	-	-	3	0.27	-	-
Meningococcal Disease[4]	9	0.36	-	-	-	-	-	-	-	-	3	0.27	-	-
Pertussis	32	1.29	-	-	3	4.26	3	1.51	3	7.67	12	1.07	1	0.37
Rabies, Possible Exposure	108	4.36	3	3.84	7	9.94	33	16.59	3	7.67	92	8.19	16	5.86
Salmonellosis	551	22.23	15	19.19	31	44.00	68	34.19	13	33.23	224	19.94	45	16.47
Shigellosis	78	3.15	1	1.28	-	-	6	3.02	2	5.11	71	6.32	10	3.66
Streptococcus pneumoniae, Invasive Disease, Drug-Resistant	134	5.41	3	3.84	5	7.10	9	4.53	-	-	42	3.74	5	1.83
Streptococcus pneumoniae, Invasive Disease, Drug-Susceptible	73	2.95	2	2.56	6	8.52	7	3.52	2	5.11	31	2.76	2	0.73
Streptococcal Disease, Invasive Group A	25	1.01	2	2.56	1	1.42	4	2.01	1	2.56	16	1.42	-	-
Syphilis	1,380	55.68	19	24.31	14	19.87	10	5.03	5	12.78	338	30.09	40	14.64
Toxoplasmosis	2	0.08	-	-	-	-	-	-	-	-	4	0.36	-	-
Tuberculosis	199	8.03	6	7.68	2	2.84	4	2.01	5	12.78	90	8.01	6	2.20
Varicella	82	3.31	0	0.00	18	25.55	35	17.60	3	7.67	63	5.61	65	23.79
Vibrio Infections[5]	8	0.32	-	-	2	2.84	1	0.50	-	-	-	-	-	-
West Nile Virus	-	-	-	-	-	-	-	-	-	-	-	-	-	-

[1] Includes reported cases of *E. coli*, O157:H7; *E. coli*, serogrpouped non-O157; and *E. coli*, shiga toxin producing.
[2] Includes reported cases of *Hemophilus influenzae* presenting as cellulitis, epiglottitis, meningitis, bacterimia, and septic arthritis.
[3] Includes reported cases of listeriosis and cases of meningitis caused by *Listeria monocytogenes*.
[4] Includes reported cases of meningococcal meningitis, pneumonia caused by *Neisseria meningitidis*, meningococcal disease, and meningococcemia disseminated.
[5] Includes reported cases of *V. alginolyticus, V. cholerae* non-O1, *V. fluvialis, V. hollisae, V. mimicus, V. parahaemolyticus, V. vulnificus*, and *V.* other.

Cont'd Table 1.3: Reported Confirmed and Probable Cases and Incidence Rate per 100,000 Population for Selected Notifiable Diseases by County of Residence, Florida, 2008

Selected Notifiable Diseases	Palm Beach County		Pasco County		Pinellas County		Polk County		Putnam County		Santa Rosa County		Sarasota County	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
Acquired Immune Deficiency Syndrome	339	26.04	36	8.16	206	21.90	133	22.55	10	13.35	7	4.90	56	14.28
Campylobacteriosis	86	6.60	24	5.44	36	3.83	39	6.61	3	4.01	7	4.90	15	3.82
Chlamydia	3,563	273.64	726	164.56	3,915	416.20	2,333	395.57	311	415.20	298	208.40	1,040	265.13
Cryptosporidiosis	37	2.84	11	2.49	13	1.38	19	3.22	1	1.34	2	1.40	17	4.33
Cyclosporiasis	12	0.92	1	0.23	6	0.64	1	0.17	-	-	-	-	1	0.25
Escherichia coli, Shiga Toxin Producing[1]	7	0.54	1	0.23	3	0.32	-	-	-	-	-	-	3	0.76
Giardiasis	118	9.06	45	10.20	34	3.61	29	4.92	2	2.67	18	12.59	14	3.57
Gonorrhea	1,022	78.49	193	43.75	1,493	158.72	762	129.20	182	242.98	76	53.15	304	77.50
Hemophilus influenzae, Invasive[2]	13	1.00	1	0.23	4	0.43	12	2.03	-	-	2	1.40	4	1.02
Hepatitis A	17	1.31	7	1.59	3	0.32	5	0.85	-	-	1	0.70	3	0.76
Hepatitis B (+HBsAg in Pregnant Women)	59	4.53	9	2.04	35	3.72	28	4.75	4	5.34	1	0.70	11	2.80
Hepatitis B, Acute	17	1.31	14	3.17	22	2.34	10	1.70	5	6.68	7	4.90	14	3.57
Hepatitis C, Acute	1	0.08	2	0.45	9	0.96	3	0.51	-	-	2	1.40	2	0.51
Human Immunodeficiency Virus	527	40.47	68	15.41	325	34.55	167	28.32	23	30.71	12	8.39	71	18.10
Legionellosis	18	1.38	0	0.00	9	0.96	5	0.85	-	-	1	0.70	5	1.27
Listeriosis[3]	10	0.77	2	0.45	3	0.32	1	0.17	-	-	-	-	1	0.25
Lyme disease	8	0.61	0	0.00	8	0.85	4	0.68	-	-	-	-	11	2.80
Malaria	4	0.31	1	0.23	3	0.32	5	0.85	-	-	1	0.70	-	-
Meningitis, Other (bacterial, cryptococcal, mycotic)	12	0.92	1	0.23	7	0.74	5	0.85	1	1.34	2	1.40	5	1.27
Meningitis, *Streptococcus pneumoniae*	4	0.31	-	-	2	0.21	6	1.02	-	-	1	0.70	1	0.25
Meningococcal Disease[4]	4	0.31	1	0.23	5	0.53	2	0.34	-	-	-	-	1	0.25
Pertussis	6	0.46	1	0.23	17	1.81	38	6.44	-	-	5	3.50	2	0.51
Rabies, Possible Exposure	102	7.83	71	16.09	70	7.44	11	1.87	7	9.35	13	9.09	18	4.59
Salmonellosis	355	27.26	127	28.79	212	22.54	144	24.42	39	52.07	47	32.87	69	17.59
Shigellosis	76	5.84	3	0.68	11	1.17	15	2.54	-	-	3	2.10	2	0.51
Streptococcus pneumoniae, Invasive Disease, Drug-Resistant	48	3.69	13	2.95	28	2.98	39	6.61	1	1.34	2	1.40	11	2.80
Streptococcus pneumoniae, Invasive Disease, Drug-Susceptible	47	3.61	20	4.53	27	2.87	34	5.76	2	2.67	18	12.59	10	2.55
Streptococcal Disease, Invasive Group A	25	1.92	10	2.27	9	0.96	16	2.71	1	1.34	2	1.40	4	1.02
Syphilis	260	19.97	16	3.63	149	15.84	74	12.55	5	6.68	3	2.10	37	9.43
Toxoplasmosis	1	0.08	-	-	1	0.11	-	-	-	-	-	-	-	-
Tuberculosis	65	4.99	8	1.81	30	3.19	21	3.56	4	5.34	2	1.40	17	4.33
Varicella	164	12.60	32	7.25	48	5.10	38	6.44	4	5.34	12	8.39	54	13.77
Vibrio Infections[5]	3	0.23	6	1.36	8	0.85	-	-	-	-	5	3.50	3	0.76
West Nile Virus	-	-	-	-	-	-	-	-	-	-	-	-	-	-

[1] Includes reported cases of *E. coli*, O157:H7; *E. coli*, serogrpouped non-O157; and *E. coli*, shiga toxin producing.
[2] Includes reported cases of *Hemophilus influenzae* presenting as cellulitis, epiglottitis, meningitis, bacterimia, and septic arthritis.
[3] Includes reported cases of listeriosis and cases of meningitis caused by *Listeria monocytogenes*.
[4] Includes reported cases of meningococcal meningitis, pneumonia caused by *Neisseria meningitidis*, meningococcal disease, and meningococcemia disseminated.
[5] Includes reported cases of *V. alginolyticus, V. cholerae* non-O1, *V. fluvialis, V. hollisae, V. mimicus, V. parahaemolyticus, V. vulnificus*, and *V.* other.

Cont'd Table 1.3: Reported Confirmed and Probable Cases and Incidence Rate per 100,000 Population for Selected Notifiable Diseases by County of Residence, Florida, 2008

Selected Notifiable Diseases	Seminole County		St. Johns County		St. Lucie County		Sumter County		Suwannee County		Taylor County		Union County	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
Acquired Immune Deficiency Syndrome	42	9.78	11	6.12	78	27.91	14	14.87	8	19.62	3	13.01	-	-
Campylobacteriosis	11	2.56	17	9.45	9	3.22	6	6.37	4	9.81	-	-	2	12.41
Chlamydia	306	71.29	919	510.96	700	250.48	210	223.11	154	377.70	106	459.63	61	378.60
Cryptosporidiosis	8	1.86	8	4.45	2	0.72	3	3.19	2	4.91	-	-	-	-
Cyclosporiasis	1	0.23	5	2.78	-	-	-	-	-	-	-	-	-	-
Escherichia coli, Shiga Toxin Producing[1]	1	0.23	3	1.67	-	-	1	1.06	-	-	-	-	-	-
Giardiasis	31	7.22	11	6.12	16	5.73	6	6.37	2	4.91	2	8.67	2	12.41
Gonorrhea	53	12.35	369	205.16	212	75.86	61	64.81	34	83.39	51	221.14	18	111.72
Hemophilus influenzae, Invasive[2]	1	0.23	-	-	3	1.07	-	-	-	-	-	-	-	-
Hepatitis A	1	0.23	2	1.11	6	2.15	-	-	-	-	-	-	-	-
Hepatitis B (+HBsAg in Pregnant Women)	14	3.26	5	2.78	12	4.29	-	-	-	-	-	-	-	-
Hepatitis B, Acute	8	1.86	4	2.22	9	3.22	4	4.25	1	2.45	-	-	-	-
Hepatitis C, Acute	-	-	-	-	-	-	2	2.12	-	-	-	-	1	6.21
Human Immunodeficiency Virus	89	20.73	18	10.01	84	30.06	17	18.06	3	7.36	4	17.34	11	68.27
Legionellosis	6	1.40	-	-	-	-	1	1.06	-	-	-	-	-	-
Listeriosis[3]	-	-	-	-	-	-	-	-	1	2.45	-	-	1	6.21
Lyme disease	-	-	5	2.78	-	-	-	-	-	-	-	-	-	-
Malaria	1	0.23	-	-	-	-	-	-	-	-	-	-	-	-
Meningitis, Other (bacterial, cryptococcal, mycotic)	3	0.70	-	-	5	1.79	-	-	-	-	-	-	-	-
Meningitis, *Streptococcus pneumoniae*	1	0.23	-	-	1	0.36	1	1.06	-	-	-	-	-	-
Meningococcal Disease[4]	-	-	1	0.56	-	-	-	-	-	-	-	-	-	-
Pertussis	-	-	3	1.67	9	3.22	-	-	3	7.36	-	-	3	18.62
Rabies, Possible Exposure	24	5.59	13	7.23	23	8.23	3	3.19	7	17.17	3	13.01	-	-
Salmonellosis	89	20.73	90	50.04	82	29.34	20	21.25	23	56.41	5	21.68	2	12.41
Shigellosis	11	2.56	1	0.56	17	6.08	2	2.12	-	-	-	-	-	-
Streptococcus pneumoniae, Invasive Disease, Drug-Resistant	16	3.73	2	1.11	16	5.73	4	4.25	-	-	-	-	-	-
Streptococcus pneumoniae, Invasive Disease, Drug-Susceptible	4	0.93	4	2.22	2	0.72	3	3.19	-	-	2	8.67	-	-
Streptococcal Disease, Invasive Group A	5	1.16	1	0.56	2	0.72	-	-	-	-	-	-	1	6.21
Syphilis	5	1.16	29	16.12	54	19.32	6	6.37	1	2.45	1	4.34	6	37.24
Toxoplasmosis	1	0.23	-	-	-	-	-	-	-	-	-	-	-	-
Tuberculosis	9	2.10	1	0.56	13	4.65	1	1.06	3	7.36	-	-	5	31.03
Varicella	31	7.22	26	14.46	16	5.73	1	1.06	6	14.72	-	-	1	6.21
Vibrio Infections[5]	-	-	-	-	3	1.07	1	1.06	-	-	-	-	-	-
West Nile Virus	-	-	-	-	-	-	-	-	-	-	-	-	-	-

[1] Includes reported cases of *E. coli*, O157:H7; *E. coli*, serogrpouped non-O157; and *E. coli*, shiga toxin producing.
[2] Includes reported cases of *Hemophilus influenzae* presenting as cellulitis, epiglottitis, meningitis, bacterimia, and septic arthritis.
[3] Includes reported cases of listeriosis and cases of meningitis caused by *Listeria monocytogenes*.
[4] Includes reported cases of meningococcal meningitis, pneumonia caused by *Neisseria meningitidis*, meningococcal disease, and meningococcemia disseminated.
[5] Includes reported cases of *V. alginolyticus, V. cholerae* non-O1, *V. fluvialis, V. hollisae, V. mimicus, V. parahaemolyticus, V. vulnificus*, and *V.* other.

Cont'd Table 1.3: Reported Confirmed and Probable Cases and Incidence Rate per 100,000 Population for Selected Notifiable Diseases by County of Residence, Florida, 2008

Selected Notifiable Diseases	Volusia County		Wakulla County		Walton County		Washington County	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate
Acquired Immune Deficiency Syndrome	99	19.37	1	3.27	7	12.01	2	8.23
Campylobacteriosis	19	3.72	3	9.81	3	5.15	2	8.23
Chlamydia	1,492	291.92	89	291.09	156	267.75	55	226.27
Cryptosporidiosis	12	2.35	4	13.08	-	-	-	-
Cyclosporiasis	-	-	-	-	-	-	-	-
Escherichia coli, Shiga Toxin Producing[1]	1	0.20	-	-	-	-	-	-
Giardiasis	34	6.65	6	19.62	3	5.15	-	-
Gonorrhea	494	96.66	32	104.66	16	27.46	8	32.91
Hemophilus influenzae, Invasive[2]	6	1.17	-	-	1	1.72	-	-
Hepatitis A	2	0.39	-	-	-	-	1	4.11
Hepatitis B (+HBsAg in Pregnant Women)	11	2.15	-	-	2	3.43	-	-
Hepatitis B, Acute	7	1.37	-	-	1	1.72	-	-
Hepatitis C, Acute	-	-	-	-	-	-	-	-
Human Immunodeficiency Virus	134	26.22	1	3.27	4	6.87	6	24.68
Legionellosis	3	0.59	-	-	-	-	-	-
Listeriosis[3]	3	0.59	-	-	-	-	-	-
Lyme disease	3	0.59	-	-	-	-	-	-
Malaria	1	0.20	-	-	-	-	-	-
Meningitis, Other (bacterial, cryptococcal, mycotic)	4	0.78	-	-	-	-	-	-
Meningitis, *Streptococcus pneumoniae*	2	0.39	-	-	-	-	-	-
Meningococcal Disease[4]	2	0.39	-	-	-	-	-	-
Pertussis	2	0.39	-	-	1	1.72	-	-
Rabies, Possible Exposure	98	19.17	-	-	1	1.72	1	4.11
Salmonellosis	146	28.57	9	29.44	23	39.48	12	49.37
Shigellosis	58	11.35	-	-	1	1.72	-	-
Streptococcus pneumoniae, Invasive Disease, Drug-Resistant	19	3.72	1	3.27	1	1.72	-	-
Streptococcus pneumoniae, Invasive Disease, Drug-Susceptible	25	4.89	1	3.27	2	3.43	2	8.23
Streptococcal Disease, Invasive Group A	10	1.96	-	-	-	-	-	-
Syphilis	41	8.02	1	3.27	5	8.58	2	8.23
Toxoplasmosis	-	-	-	-	-	-	-	-
Tuberculosis	12	2.35		0.00	1	1.72	-	-
Varicella	142	27.78	5	16.35	16	27.46	4	16.46
Vibrio Infections[5]	2	0.39	-	-	1	1.72	1	4.11
West Nile Virus	-	-	-	-	-	-	-	-

[1] Includes reported cases of *E. coli*, O157:H7; *E. coli*, serogrpouped non-O157; and *E. coli*, shiga toxin producing.
[2] Includes reported cases of *Hemophilus influenzae* presenting as cellulitis, epiglottitis, meningitis, bacterimia, and septic arthritis.
[3] Includes reported cases of listeriosis and cases of meningitis caused by *Listeria monocytogenes*.
[4] Includes reported cases of meningococcal meningitis, pneumonia caused by *Neisseria meningitidis,* meningococcal disease, and meningococcemia disseminated.
[5] Includes reported cases of *V. alginolyticus, V. cholerae* non-O1, *V. fluvialis, V. hollisae, V. mimicus, V. parahaemolyticus, V. vulnificus*, and *V.* other.

Table 1.4: Reported Confirmed and Probable Cases and Incidence Rate per 100,000 Population for Selected Notifiable Diseases by Age Group, Florida, 2008

Selected Notifiable Diseases	Age Group																									
	<1		1-4		5-9		10-14		15-19		20-24		25-34		35-44		45-54		55-64		65-74		75-84		85+	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
Acquired Immune Deficiency Syndrome	4	1.78	3	0.33	3	0.26	13	1.11	66	5.41	227	18.61	915	39.77	1,677	66.66	1,410	52.65	479	191.37	132	8.22	27	2.30	1	0.21
Campylobacteriosis	71	31.62	184	20.49	86	7.46	71	6.04	59	4.84	48	3.93	104	4.52	111	4.41	129	4.82	114	45.54	73	4.55	52	4.42	16	3.34
Chlamydia	NR	-	25	2.78	7	0.61	735	62.51	23,739	1946.05	26,456	2168.59	15,620	678.86	3,077	122.31	800	29.87	182	72.71	34	2.12	14	1.19	8	1.67
Cryptosporidiosis	9	4.01	100	11.13	61	5.29	36	3.06	32	2.62	31	2.54	76	3.30	73	2.90	55	2.05	28	11.19	25	1.56	16	1.36	7	1.46
Cyclosporiasis	-	-	1	0.11	1	0.09	-	-	1	0.08	1	0.08	12	0.52	9	0.36	6	0.22	10	4.00	12	0.75	6	0.51	-	-
Escherichia coli, Shiga Toxin Producing[1]	2	0.89	14	1.56	8	0.69	10	0.85	10	0.82	3	0.25	6	0.26	4	0.16	3	0.11	1	0.40	3	0.19	-	-	1	0.21
Giardiasis	11	4.90	320	35.63	184	15.96	84	7.14	49	4.02	55	4.51	133	5.78	191	7.59	151	5.64	99	39.55	64	3.99	36	3.06	15	3.13
Gonorrhea	NR	-	7	0.78	12	1.04	253	21.52	6,689	548.34	7,502	614.94	5,727	248.90	1,918	76.24	839	31.33	219	87.49	48	2.99	9	0.77	3	0.63
Hemophilus influenzae, Invasive[2]	12	5.34	12	1.34	1	0.09	3	0.26	2	0.16	7	0.57	9	0.39	4	0.16	19	0.71	17	6.79	23	1.43	27	2.30	26	5.43
Hepatitis A	-	-	8	0.89	12	1.04	14	1.19	6	0.49	7	0.57	22	0.96	24	0.95	20	0.75	20	7.99	16	1.00	11	0.94	5	1.04
Hepatitis B (+HBsAg in Pregnant Women)	-	-	-	-	-	-	1	0.17	36	6.03	125	20.98	329	29.22	105	8.40	3	0.22	-	-	-	-	-	-	-	-
Hepatitis B, Acute	-	-	-	-	-	-	-	-	3	0.25	11	0.90	92	4.00	112	4.45	86	3.21	32	12.78	15	0.93	6	0.51	1	0.21
Hepatitis C, Acute	-	-	-	-	-	-	1	0.09	1	0.08	13	1.07	5	0.22	15	0.60	10	0.37	5	2.00	3	0.19	-	-	-	-
Human Immunodeficiency Virus	33	14.70	18	2.00	17	1.47	27	2.30	247	20.25	769	63.03	1,740	75.62	2,230	88.64	1,768	66.02	578	230.92	136	8.47	22	1.87	3	0.63
Legionellosis	-	-	-	-	-	-	-	-	-	-	4	0.33	4	0.17	13	0.52	19	0.71	35	13.98	32	1.99	30	2.55	11	2.30
Listeriosis[3]	2	0.89	2	0.22	-	-	2	0.17	-	-	1	0.08	-	-	1	0.04	-	-	7	2.80	13	0.81	10	0.85	8	1.67
Lyme Disease	-	-	5	0.56	6	0.52	9	0.77	5	0.41	5	0.41	7	0.30	11	0.44	9	0.34	13	5.19	13	0.81	5	0.43	-	-
Malaria	-	-	1	0.11	3	0.26	1	0.09	4	0.33	7	0.57	8	0.35	11	0.44	18	0.67	8	3.20	4	0.25	-	-	-	-
Meningitis, Other	34	15.14	5	0.56	4	0.35	7	0.60	7	0.57	5	0.41	25	1.09	29	1.15	30	1.12	28	11.19	11	0.69	12	1.02	2	0.42
Meningitis, *Streptococcus pneumoniae*	7	3.12	2	0.22	4	0.35	2	0.17	1	0.08	-	-	2	0.09	3	0.12	9	0.34	7	2.80	3	0.19	1	0.09	-	-
Meningococcal Disease[4]	3	1.34	8	0.89	3	0.26	1	0.09	5	0.41	4	0.33	2	0.09	5	0.20	7	0.26	4	1.60	6	0.37	3	0.26	-	-
Pertussis	93	41.42	56	6.24	59	5.12	45	3.83	15	1.23	5	0.41	14	0.61	15	0.60	2	0.07	4	1.60	5	0.31	-	-	-	-
Rabies, Possible Exposure	6	2.67	72	8.02	100	8.67	102	8.67	131	10.74	128	10.49	233	10.13	252	10.02	266	9.93	157	62.72	111	6.91	48	4.08	12	2.50
Salmonellosis	1,073	477.91	1,256	139.85	456	39.55	205	17.43	146	11.97	160	13.12	313	13.60	363	14.43	390	14.56	335	133.84	311	19.37	210	17.87	94	19.62
Shigellosis	26	11.58	224	24.94	207	17.95	61	5.19	26	2.13	42	3.44	86	3.74	50	1.99	30	1.12	18	7.19	14	0.87	15	1.28	2	0.42
Streptococcus pneumoniae, Invasive Disease, Drug-Resistant	47	20.93	114	12.69	26	2.25	3	0.26	7	0.57	9	0.74	42	1.83	68	2.70	125	4.67	124	49.54	87	5.42	92	7.83	48	10.02
Streptococcus pneumoniae, Invasive Disease, Drug-Susceptible	21	9.35	49	5.46	20	1.73	4	0.34	11	0.90	5	0.41	43	1.87	71	2.82	139	5.19	109	43.55	32	1.99	79	6.72	61	12.73
Streptococcal Disease, Invasive Group A	5	2.23	16	1.78	7	0.61	9	0.77	4	0.33	9	0.74	19	0.83	19	0.76	34	1.27	57	22.77	42	2.62	29	2.47	25	5.22
Syphilis	NR	-	15	1.67	3	0.26	4	0.34	270	22.13	582	47.71	1,088	47.29	1,269	50.44	849	31.70	326	130.24	119	7.41	40	3.40	13	2.71
Toxoplasmosis	-	-	-	-	-	-	-	-	-	-	1	0.08	3	0.13	5	0.20	2	0.07	2	0.80	1	0.06	-	-	-	-
Tuberculosis	16	7.13	23	2.56	5	0.43	4	0.34	26	2.13	67	5.49	134	5.82	144	5.72	232	8.66	140	55.93	79	4.92	63	5.36	20	4.17
Varicella	57	25.39	183	20.38	692	60.02	384	32.66	146	11.97	33	2.71	78	3.39	62	2.46	34	1.27	20	7.99	22	1.37	19	1.62	5	1.04
Vibrio Infections[5]	-	-	2	0.22	1	0.09	7	0.60	6	0.49	3	0.25	10	0.43	12	0.48	11	0.41	17	6.79	11	0.69	10	0.85	4	0.83
West Nile Virus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0.06	1	0.09	-	-

[1] Includes reported cases of *E. coli*, O157:H7; *E. coli*, serogrpouped non-O157; and *E. coli*, shiga toxin producing.
[2] Includes reported cases of *Hemophilus influenzae* presenting as cellulitis, epiglottitis, meningitis, bacterimia, and septic arthritis.
[3] Includes reported cases of listeriosis and cases of meningitis caused by *Listeria monocytogenes.*
[4] Includes reported cases of meningococcal meningitis, pneumonia caused by *Neisseria meningitidis*, meningococcal disease, and meningococcemia disseminated.
[5] Includes reported cases of *V. alginolyticus, V. cholerae non-O1, V. fluvialis, V. hollisae, V. mimicus, V. parahaemolyticus, V. vulnificus, and V.* other.
NR-Not reported

Table 1.5: Top 10 Reported Confirmed and Probable Cases of Disease by Age Group, Florida, 2008

	Age Group												
Rank	<1	1-4	5-9	10-14	15-19	20-24	25-34	35-44	45-54	55-64	65-74	75-84	85+
1	Salmonellosis (1,073)	Salmonellosis (1,256)	Varicella (692)	Chlamydia (735)	Chlamydia (23,739)	Chlamydia (26,456)	Chlamydia (15,620)	Chlamydia (3,077)	HIV (1,768)	HIV (578)	Salmonellosis (311)	Salmonellosis (210)	Salmonellosis (94)
2	Pertussis (93)	Giardiasis (320)	Salmonellosis (456)	Varicella (384)	Gonorrhea (6,689)	Gonorrhea (7,502)	Gonorrhea (5,727)	HIV (2,230)	AIDS (1,410)	AIDS (479)	HIV (136)	*Streptococcus pneumoniae,* Invasive Disease, Drug-Resistant (92)	*Streptococcus pneumoniae,* Invasive Disease, Drug-Sensitive (61)
3	Campylobacteriosis (71)	Shigellosis (224)	Shigellosis (207)	Gonorrhea (253)	Syphilis (270)	HIV (769)	HIV (1,740)	Gonorrhea (1,918)	Syphilis (849)	Salmonellosis (335)	AIDS (132)	*Streptococcus pneumoniae,* Invasive Disease, Drug-Sensitive (79)	*Streptococcus pneumoniae,* Invasive Disease, Drug-Resistant (48)
4	Varicella (57)	Lead Poisoning (217)	Giardiasis (184)	Salmonellosis (205)	HIV (247)	Syphilis (582)	Syphilis (1,088)	AIDS (1,677)	Gonorrhea (839)	Syphilis (326)	Syphilis (119)	Tuberculosis (63)	*Haemophilus influenzae,* Invasive Disease (26)
5	*Streptococcus pneumoniae,* Invasive Disease, Drug-Resistant (47)	Campylobacteriosis (184)	Rabies, Possible Exposure (100)	Rabies, Possible Exposure (102)	Salmonellosis (146)	AIDS (227)	AIDS (915)	Syphilis (1,269)	Chlamydia (600)	Gonorrhea (219)	Rabies, Possible Exposure (111)	Campylobacteriosis (52)	Streptococcal Disease, Invasive Group A (25)
6	Meningitis, Other (34)	Varicella (183)	Lead Poisoning (92)	Giardiasis (84)	Varicella (146)	Salmonellosis (160)	Hepatitis B (+HBsAg in Pregnant Woman) (329)	Salmonellosis (363)	Salmonellosis (390)	Chlamydia (182)	*Streptococcus pneumoniae,* Invasive Disease, Drug-Sensitive (92)	Rabies, Possible Exposure (48)	Tuberculosis (20)
7	HIV (33)	*Streptococcus pneumoniae,* Invasive Disease, Drug-Resistant (114)	Campylobacteriosis (86)	Campylobacteriosis (71)	Rabies, Possible Exposure (131)	Rabies, Possible Exposure (128)	Salmonellosis (313)	Rabies, Possible Exposure (252)	Rabies, Possible Exposure (266)	Rabies, Possible Exposure (157)	*Streptococcus pneumoniae,* Invasive Disease, Drug-Resistant (87)	Syphilis (40)	Campylobacteriosis (16)
8	Shigellosis (26)	Cryptosporidiosis (100)	Cryptosporidiosis (61)	Lead Poisoning (61)	AIDS (66)	Hepatitis B (+HBsAg in Pregnant Woman) (125)	Rabies, Possible Exposure (233)	Giardiasis (191)	Tuberculosis (232)	Tuberculosis (140)	Tuberculosis (79)	Giardiasis (36)	Giardiasis (15)
9	*Streptococcus pneumoniae,* Invasive Disease, Drug-Susceptible (21)	Rabies, possible exposure (72)	Pertussis (59)	Shigellosis (61)	Campylobacteriosis (59)	Tuberculosis (67)	Tuberculosis (134)	Tuberculosis (144)	Giardiasis (151)	*Streptococcus pneumoniae,* Invasive Disease, Drug-Resistant (124)	Campylobacteriosis (73)	Legionellosis (30)	Syphilis (13)
10	Syphilis (18)	Pertussis (56)	*Streptococcus pneumoniae,* Invasive Disease, Drug-Resistant (26)	Pertussis (45)	Giardiasis (49)	Giardiasis (55)	Giardiasis (133)	Hepatitis B, Acute (112)	*Streptococcus pneumoniae,* Invasive Disease, Drug-Sensitive (139)	Campylobacteriosis (114)	Giardiasis (64)	Streptococcal Disease, Invasive Group A (29)	Rabies, Possible Exposure (12)

For contextual understanding of the distribution of an individual disease listed in this table, please refer to Section 2: Select Notifiable Diseases and Conditions.

Table 1.6: Reported Confirmed and Probable Cases and Incidence Rate per 100,000 Population for Selected Notifiable Diseases by Gender, Florida, 2008

Selected Notifiable Diseases	Male		Female	
	Number	Rate	Number	Rate
Acquired Immune Deficiency Syndrome	3,420	36.95	1,537	15.94
Campylobacteriosis	618	6.68	499	5.18
Chlamydia	18,519	200.08	52,014	539.53
Cryptosporidiosis	274	2.96	273	2.83
Cyclosporiasis	36	0.39	23	0.24
Escherichia coli, Shiga Toxin Producing [1]	37	0.40	28	0.29
Giardiasis	794	8.58	596	6.18
Gonorrhea	10,964	118.45	12,221	126.77
Hemophilus influenzae, Invasive Disease[2]	70	0.76	92	0.95
Hepatitis A	92	0.99	73	0.76
Hepatitis B (+HBsAg in Pregnant Women)	-	-	600	6.22
Hepatitis B, Acute	234	2.53	123	1.28
Hepatitis C, Acute	27	0.29	26	0.27
Human Immunodeficiency Virus	5,578	60.26	2,010	20.85
Legionellosis	80	0.86	68	0.71
Listeriosis[3]	31	0.33	19	0.20
Lyme Disease	53	0.57	35	0.36
Malaria	45	0.49	20	0.21
Meningitis, Other (bacterial, cryptococcal, mycotic)	130	1.40	69	0.72
Meningitis, *Streptococcus pneumoniae*	25	0.27	16	0.17
Meningococcal Disease[4]	23	0.25	28	0.29
Pertussis	160	1.73	154	1.60
Rabies, Possible Exposure	758	8.19	859	8.91
Salmonellosis	2,601	28.10	2,704	28.05
Shigellosis	385	4.16	416	4.32
Streptococcus pneumoniae, Invasive Disease, Drug-Resistant	393	4.25	399	4.14
Streptococcus pneumoniae, Invasive Disease, Drug-Susceptible	351	3.79	353	3.66
Streptococcal disease, Invasive Group A	157	1.70	118	1.22
Syphilis	3,262	35.24	1,306	13.55
Toxoplasmosis	8	0.09	6	0.06
Tuberculosis	615	6.64	338	3.51
Varicella	893	9.65	842	8.73
Vibrio Infections[5]	66	0.70	27	0.28
West Nile Virus	3	0.03	0	0.00

[1] Includes reported cases of *E. coli*, O157:H7; *E. coli*, serogrpouped non-O157; and *E. coli*, shiga toxin producing.
[2] Includes reported cases of *Hemophilus influenzae* presenting as cellulitis, epiglottitis, meningitis, bacterimia, and septic arthritis.
[3] Includes reported cases of listeriosis and cases of meningitis caused by *Listeria monocytogenes.*
[4] Includes reported cases of meningococcal meningitis, pneumonia caused by *Neisseria meningitidis*, meningococcal disease, and meningococcemia disseminated.
[5] Includes reported cases of *V. alginolyticus, V. cholerae* non-O1*, V. fluvialis, V. hollisae, V. mimicus, V. parahaemolyticus, V. vulnificus,* and *V.* other.

Table 1.7: Reported Confirmed and Probable Cases of Selected Notifiable Diseases by Month of Onset[1], Florida, 2008

Disease	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Campylobacteriosis	70	77	58	76	76	103	117	101	107	77	70	75
Cryptosporidiosis	21	24	23	30	20	33	62	123	88	37	18	26
Cyclosporiasis	7	2	0	3	16	18	4	1	0	2	0	2
Escherichia coli, Shiga Toxin Producing[2]	4	3	5	0	5	6	10	5	4	11	1	4
Giardiasis	64	44	65	73	87	82	96	101	103	97	71	70
Haemophilus influenzae, Invasive Disease[3]	12	14	7	6	12	11	11	7	9	7	13	13
Hepatitis A	13	14	7	17	8	8	20	16	15	10	10	9
Hepatitis B (+HBsAg in a Pregnant Woman)	4	6	1	2	9	2	2	3	4	2	3	5
Hepatitis B, Acute	23	26	21	29	21	20	29	33	32	16	29	31
Hepatitis C, Acute	3	7	2	2	4	2	5	4	3	0	4	8
Legionellosis	13	14	7	8	10	14	17	12	12	20	9	12
Listeriosis[4]	2	4	5	2	3	3	3	7	6	6	3	2
Lyme Disease	1	1	1	3	4	15	24	15	12	3	3	1
Malaria	12	2	1	4	2	5	3	11	8	5	6	4
Meningitis, Other (bacterial, cryptococcal, mycotic)	16	11	5	6	12	11	15	25	21	18	17	14
Meningitis, *Streptococcus pneumoniae*	7	6	4	4	4	6	4	0	0	0	1	3
Meningococcal Disease[5]	6	9	6	6	4	3	3	4	2	1	0	4
Pertussis	10	17	17	16	19	32	47	44	34	31	23	11
Rabies, Possible Exposure	83	104	113	117	141	138	132	140	106	154	120	98
Salmonellosis	267	163	182	267	302	485	558	526	573	547	410	318
Shigellosis	80	75	65	64	59	77	61	51	38	56	41	62
Streptococcus pneumoniae, Invasive Disease, Drug-Resistant	61	59	50	45	47	33	23	26	23	49	72	78
Streptococcus pneumoniae, Invasive Disease, Drug-Susceptible	53	56	38	45	42	20	17	23	26	36	50	78
Streptococcal Disease, Invasive Group A	24	20	20	22	17	15	21	17	15	22	12	26
Toxoplasmosis	0	0	0	1	0	0	2	1	2	3	0	1
Varicella	105	228	200	180	168	53	42	36	81	95	115	169
Vibrio Infections[6]	0	4	2	10	5	14	10	13	7	10	2	4
West Nile Virus	0	0	0	0	0	1	0	2	0	0	0	0

[1] Only cases of diseases with known dates of onset are included in this table.
[2] Includes reported cases of *E. coli*, O157:H7; *E. coli*, serogrpouped non-O157; and *E. coli*, shiga toxin producing.
[3] Includes reported cases of *H. influenzae* presenting as cellulitis, epiglottitis, meningitis, bacteremia, and septic arthritis.
[4] Includes reported cases of listeriosis and cases of meningitis caused by *Listeria monocytogenes.*
[5] Includes reported cases of meningococcal meningitis, pneumonia caused by *Neisseria meningitidis*, meningococcal disease, and meningococcemia disseminated.
[6] Includes reported cases of *V. alginolyticus, V. cholerae* non-O1, *V. fluvialis, V. hollisae, V. mimicus, V. parahaemolyticus, V. vulnificus, and V.* other.

Summary of Selected Notifiable Diseases and Conditions

Section 2

List of Notifiable Diseases and Conditions Included

Acquired Immune Deficiency Syndrome/
Human Immunodeficiency Virus
Brucellosis
Campylobacteriosis
Chlamydia
Ciguatera Fish Poisoning
Cryptosporidiosis
Cyclosporiasis
Dengue Fever
Eastern Equine Encephalitis
Ehrlichiosis/Anaplasmosis
Escherichia coli, Shiga Toxin Producing
Giardiasis
Gonorrhea
Haemophilus influenzae, Invasive Disease
Hepatitis A
Hepatitis B (+HBsAg in Pregnant Women)
Hepatitis B, Acute
Hepatitis C, Acute
Lead Poisoning
Legionellosis
Listeriosis
Lyme Disease
Malaria
Measles
Meningitis, Other (Bacterial, Cryptococcal,
Mycotic)
Meningococcal Disease
Mumps
Neonatal Infections
Pertussis
Rabies, Animal
Rabies, Possible Exposure
Rocky Mountain Spotted Fever
Salmonellosis
Shigellosis
Streptococcal Disease, Invasive Group A
Streptococcus pneumoniae, Invasive Disease,
Drug-Resistant
Streptococcus pneumoniae, Invasive Disease,
Drug-Susceptible
Syphilis
Tetanus
Tuberculosis
Toxoplasmosis
Typhoid Fever
Varicella
Vibrio Infections
West Nile Virus

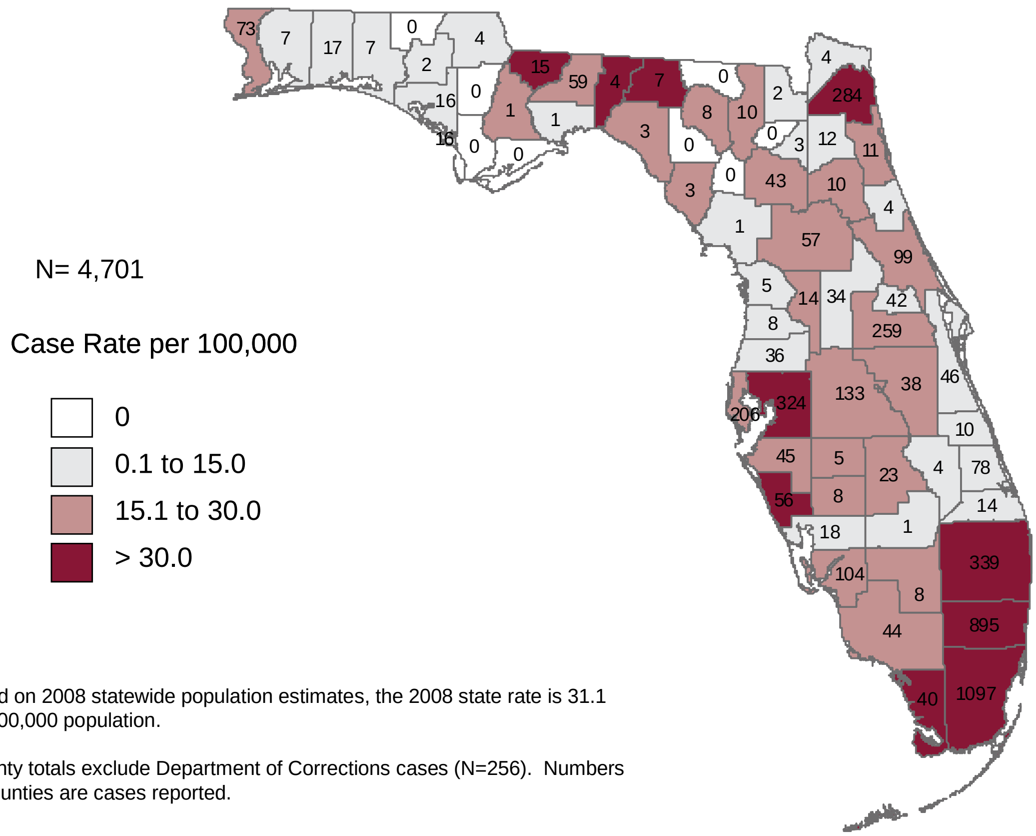
Acquired Immune Deficiency Syndrome/ Human Immunodeficiency Virus

In 2008, Florida ranked third among states in the number of reported acquired immune deficiency syndrome (AIDS) cases. California reported 4,952 (13%), followed by New York with 4,810 cases (13%), then Florida with 3,960 cases (10%), and Texas with 2,964 cases (8%). Florida ranked third among the 38 states that reported human immunodeficiency virus (HIV) cases in 2008. California reported 17,588 cases (28%), followed by New York with 5,197 cases (8%), then Florida with 5,165 cases (8%), and Pennsylvania with 3,694 cases (6%).

In 2008, Florida reported a higher percentage of adult AIDS cases among heterosexuals (33%) than the U.S. reported in 2007 (20%) (Note: U.S. data not available for 2008). Florida reported a lower percentage of adult AIDS cases among men who had sex with men (MSM) (34%) than the U.S. (38%) and among injection drug users (IDU) (8%) than the U.S. (12%). MSM/IDU cases accounted for 3% of total reported cases in Florida and 4% in the U.S. A lower proportion of cases with no identified risk (NIR) were reported in Florida (22%) than in the U.S. (26%). Florida reported a higher percentage of adult AIDS cases among blacks (53%) compared with the U.S. (41%). Florida also reported a higher percentage of cases among women (31%) compared with the U.S. (27%).

As with reported AIDS cases in 2008, Florida reported a higher percentage of cases of HIV among heterosexuals (23%) compared to reported cases in the U.S. (16%). Florida reported a lower percentage of adult HIV cases among MSM (42% vs. 47%) and among IDU (4% vs. 9%) than the U.S. MSM/IDU cases accounted for 2% of total reported cases in Florida and 4% in the U.S. A higher proportion of cases with no identified risk (NIR) were reported in Florida (29%) than in the U.S. (24%). Florida reported a higher percentage of adult HIV cases among blacks (46%) compared with the U.S. (34%). Florida reported the same percentage of cases among women (26%) as the U.S.

Figure 1. AIDS Cases and Rates per 100,000 Population, by County of Residence*, Florida, 2008



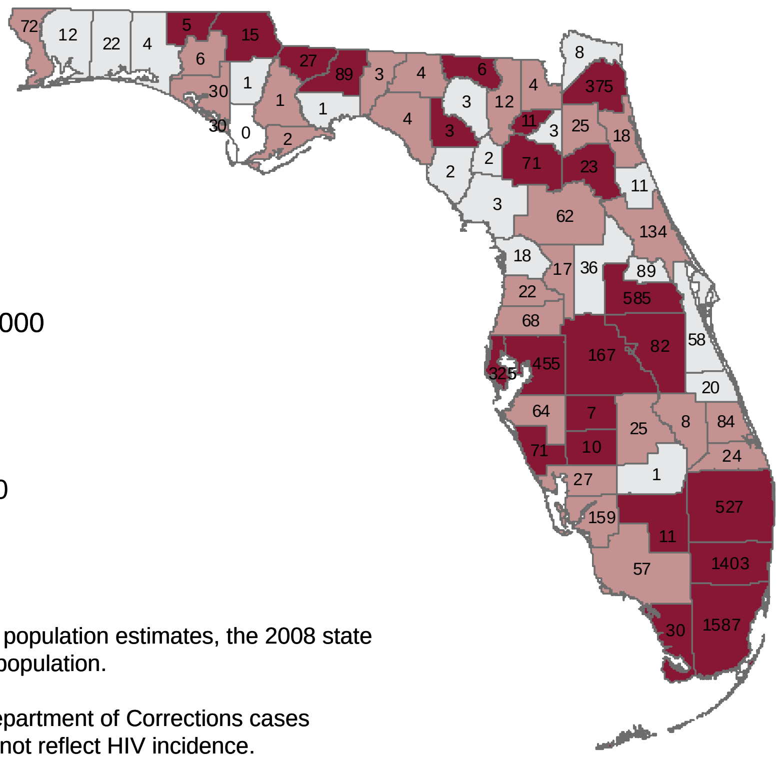
Based on 2008 statewide population estimates, the 2008 state rate is 31.1 per 100,000 population.

*County totals exclude Department of Corrections cases (N=256). Numbers on counties are cases reported.

In 2008, at least one AIDS case was reported in all but eight counties (Figure 1). Although the AIDS epidemic is widespread throughout Florida, the majority of cases were reported from nine counties: Broward, Duval, Hillsborough, Lee, Miami-Dade, Orange, Palm Beach, Pinellas, and Polk. These seven counties reported a combined total of 3,641 cases, or 77% of Florida's total reported cases in 2008. The greatest numbers of AIDS cases were reported from three counties located in the southeastern part of the state; Broward, Miami-Dade, and Palm Beach. These three counties reported a combined total of 2,331 cases in 2008, or 49% of the statewide total.

Analysis of county-specific AIDS case rates per 100,000 population for 2008 in counties with 20 or more reported cases, indicate that Monroe County ranked the highest with a rate of 51.2, followed by Broward (50.4), Miami-Dade (44.3), and Duval (31.3) counties.

Figure 2. HIV cases, by County of Residence*, Florida, 2008



N= 7,111

Case Rate per 100,000

- 0
- 0.1 to 15.0
- 15.1 to 30.0
- > 30.0

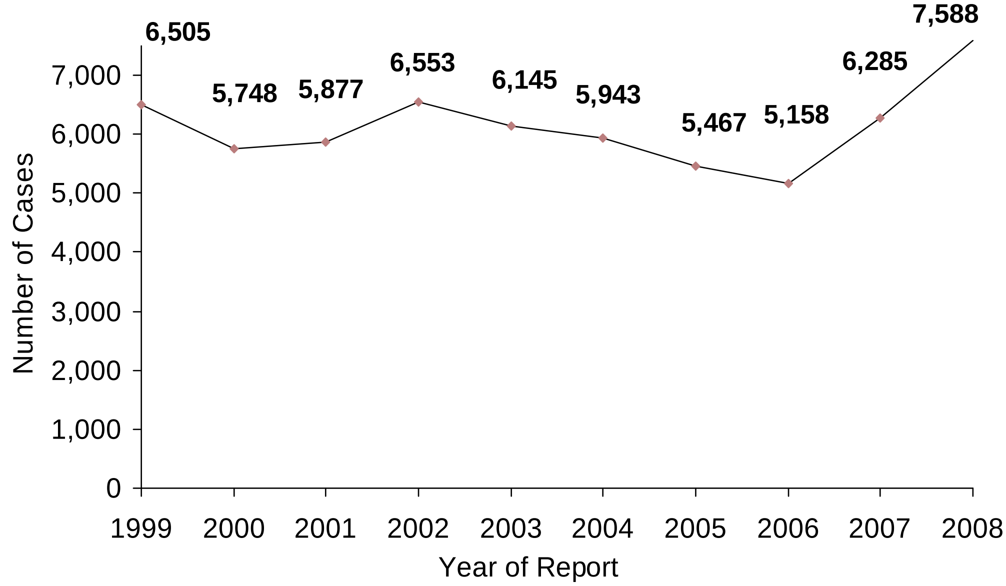
Based on 2008 statewide population estimates, the 2008 state rate is 47.1 per 100,000 population.

*County totals exclude Department of Corrections cases (N=477). This map does not reflect HIV incidence. Numbers on counties are cases reported.

In 2008, at least one HIV case was reported in all but one county, and ten counties reported 100 or more cases (Figure 2). These ten counties included the same nine counties that reported the majority of AIDS cases plus Volusia County. These ten counties reported a combined total of 5,717 cases, or 80% of Florida's total reported HIV cases in 2008. The greatest numbers of HIV cases were reported from Miami-Dade, Broward, and Orange Counties. These three counties reported a combined total of 3,575 cases in 2008, or 50% of the statewide total.

Generally, reported numbers of HIV cases remained fairly stable from 1999 to 2006. The slight increase in 2002 was due to increased HIV testing statewide as part of the "Get to Know Your Status" campaign. Since that time, newly reported HIV cases have decreased each year until 2006. Enhanced reporting laws were implemented in November 2006, leading to an increase in reported cases of HIV in 2007 and 2008 (Figure 3). This change in reporting laws allowed more people to meet the case definition for newly diagnosed HIV and therefore the increase observed is not a true increase in incidence of HIV infection but rather an increase in reported cases.

Figure 3. HIV Cases and Case Rates per 100,000 Population*,
by Year of Report, Florida, 1999-2008

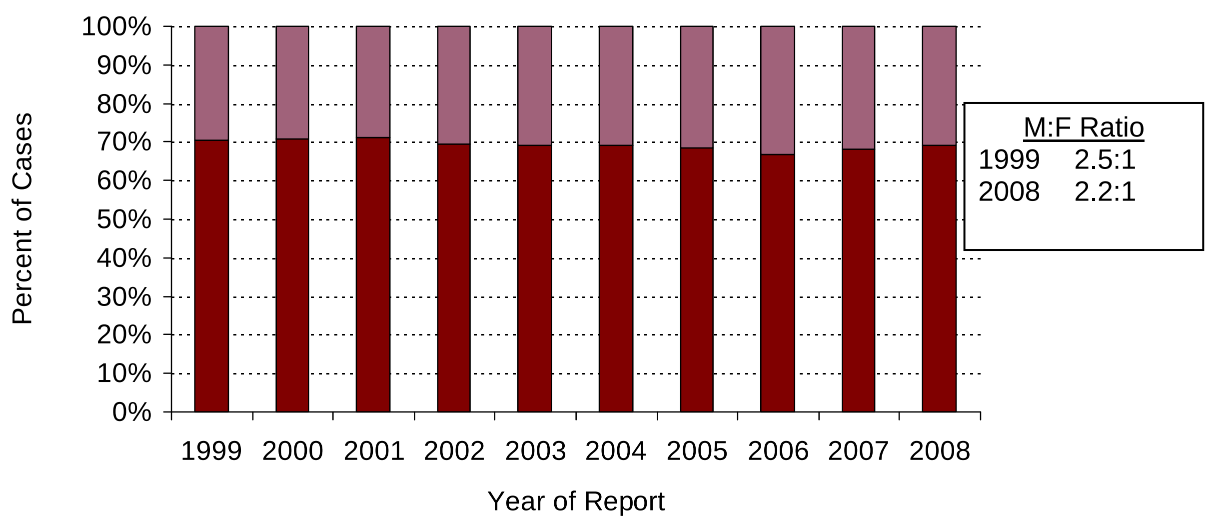


Year	Rate
1999	14.5
2000	16.2
2001	15.9
2002	17.8
2003	16.9
2004	13.3
2005	10.5
2006	14.0
2007	16.8
2008	40.2

*Rates are expressed as deaths per 100,000 population based on 2006 Population Estimates, DOH, Office of Planning, Evaluation and Data Analysis

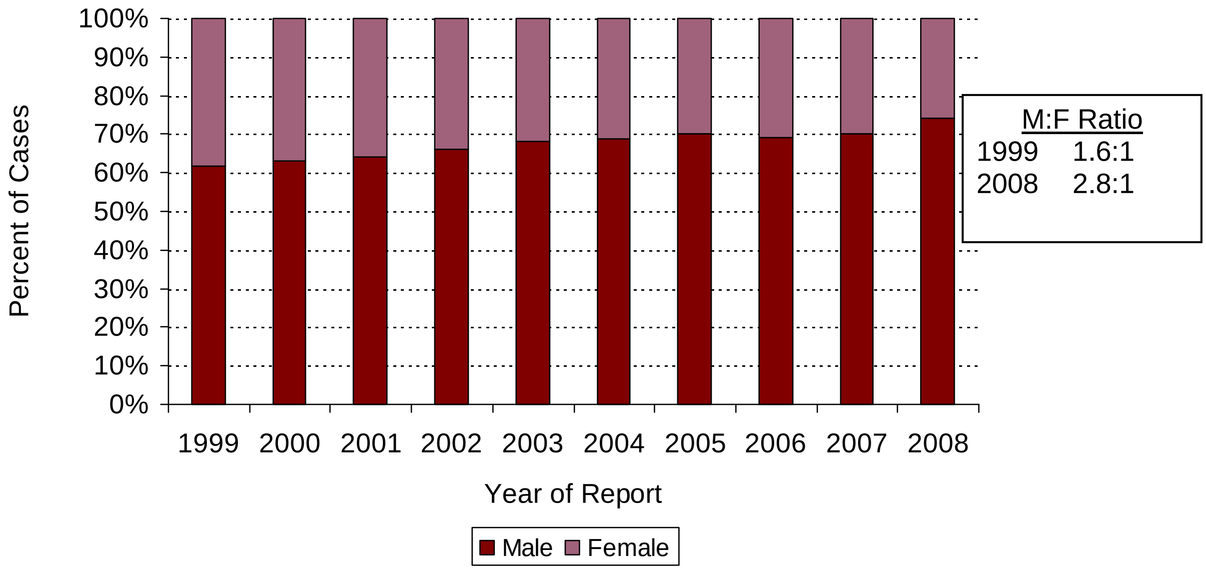
In 1999, 28% of the adult AIDS cases reported in Florida were women (Figure 4). Over the past ten years, the proportion of AIDS cases among women has increased slightly. This has resulted in a decline of the male-to-female ratio, from 2.5:1 in 1999 to 2.2:1 in 2008. In 2008, the case rate per 100,000 population was 33.5 among adult males and 16.2 among adult females, indicating that AIDS cases in this time period were still more likely to be reported among males than females in Florida.

Figure 4. Percent of Adult AIDS Cases by Sex and
Year of Report, Florida, 1999-2008



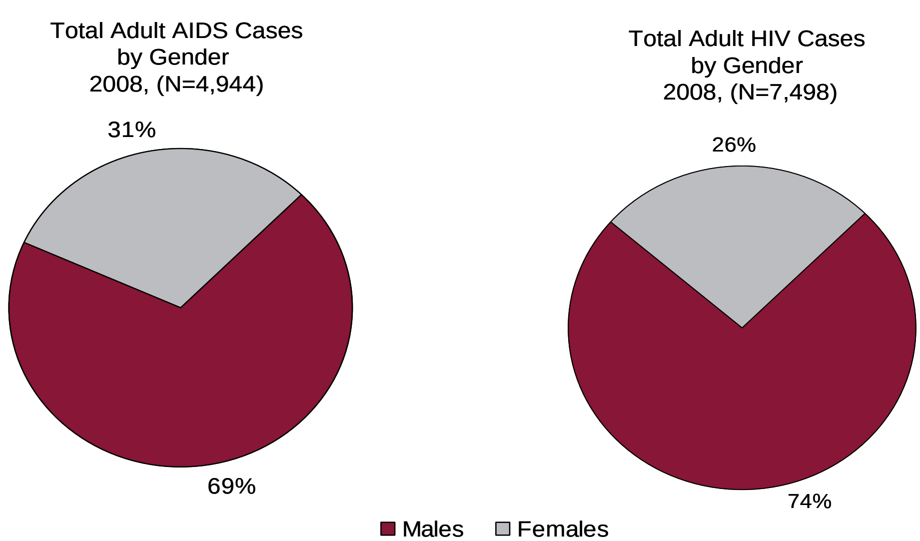
In 1999, 38% of the HIV cases reported in Florida were female (Figure 5). The proportion of HIV cases among women has decreased steadily over the past ten years. The result is an increase of the male-to-female ratio, from 1.6:1 in 1999 to 2.8:1 in 2008. This increase in the male-to-female ratio differs from the pattern seen for AIDS cases during the same time period.

Figure 5. Percent of Adult HIV Cases by Sex and Year of Report, Florida, 1999-2008



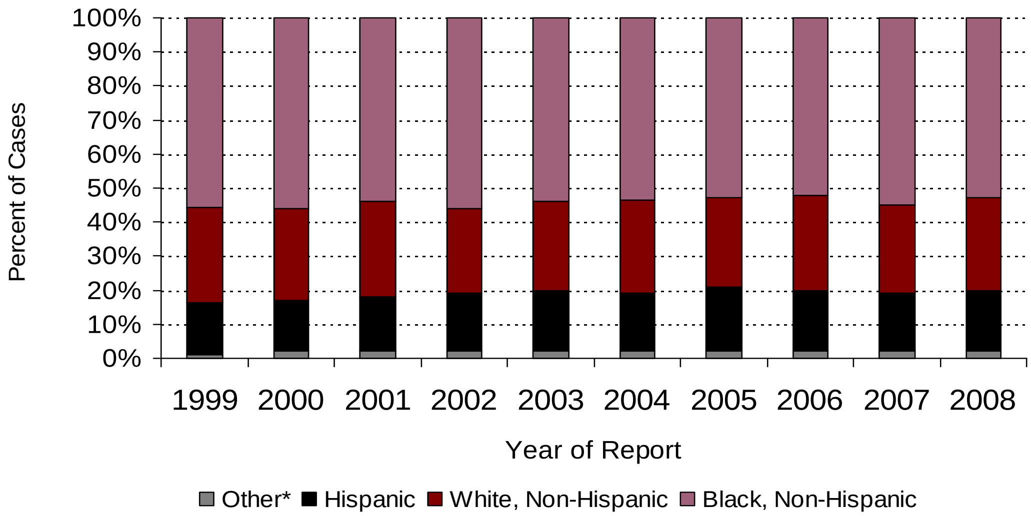
In 2008, a total of 3,415 men and 1,529 women were reported with AIDS, representing 69% and 31% of cases, respectively (Figure 6). Also in 2008, a total of 5,532 men and 1,966 women were reported with HIV infection, representing 74% and 26% of cases, respectively.

Figure 6. Percentage of Adult AIDS Cases by Sex, Florida, Compared with Percentage of Adult HIV Cases by Sex, Florida, 2008



HIV case reporting, implemented in July 1997, tends to indicate newer infections than are reflected by AIDS case data, although we do not know the proportion of diagnosed HIV cases that were recently acquired. HIV case reports augment AIDS case data and provide good information by age, sex and race/ethnicity on persons who have been tested confidentially. Twenty-eight percent of the adult AIDS cases reported in Florida in 1999 were white, compared with 55% black and 15% Hispanic (Figure 7). Over the past ten years the proportion of AIDS cases among whites, blacks and Hispanics has remained fairly stable.

Figure 7. Percent of Adult AIDS Cases by Race/Ethnicity and Year of Report, Florida, 1999-2008



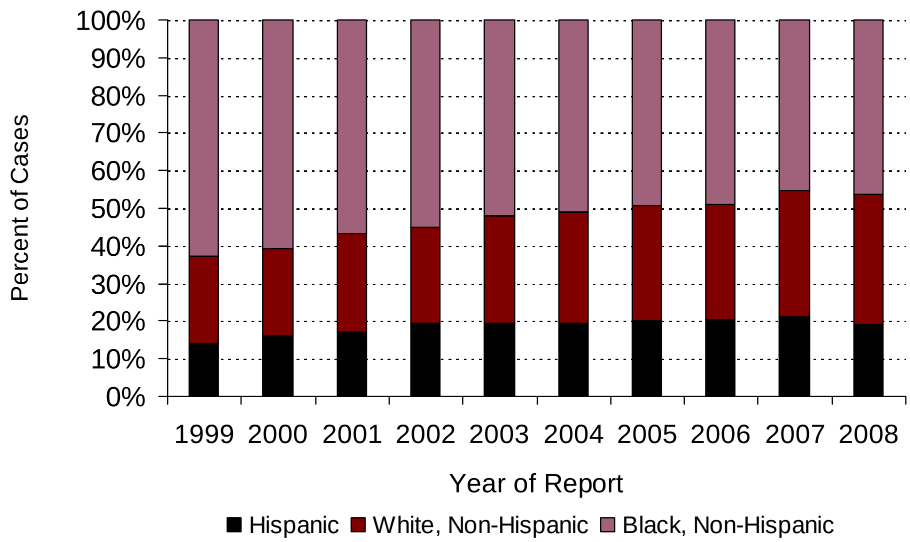
*Other includes American Indian/Alaska Native, Asian/Pacific Islander, and Multi-racial

<u>Factors Affecting Disparities</u>

- Late diagnosis of HIV.
- Access to/acceptance of care.
- Delayed prevention messages.
- Stigma.
- Non-HIV STDs in the community.
- Prevalence of injection drug use.
- Complex matrix of factors related to socioeconomic status.

Twenty-three percent of the adult HIV cases reported in Florida in 1999 were white, compared with 62% black (Figure 8). By 2008, the percentage of HIV cases increased for whites (34%) and decreased among blacks to 46%. The percentage of HIV cases among Hispanics had a slight but steady increase since 1999.

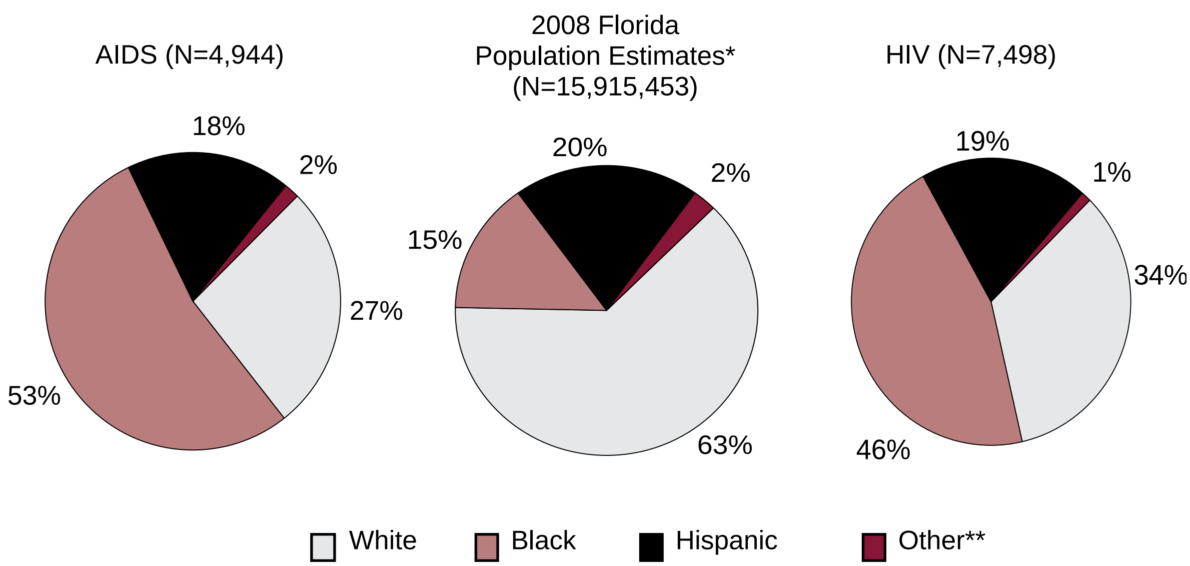
Figure 8. Percent of Adult HIV Cases by Race/Ethnicity* and Year of Report, Florida, 1999-2008



*Other races represent less than 1% of the cases and are not included

Blacks comprise only 15% of the adult population, but represent 53% of the AIDS cases and 46% of the HIV cases reported in 2008 (Figure 9). Hispanics comprise 20% of Florida's adult population, and account for 18% of the AIDS cases and 19% of the HIV cases.

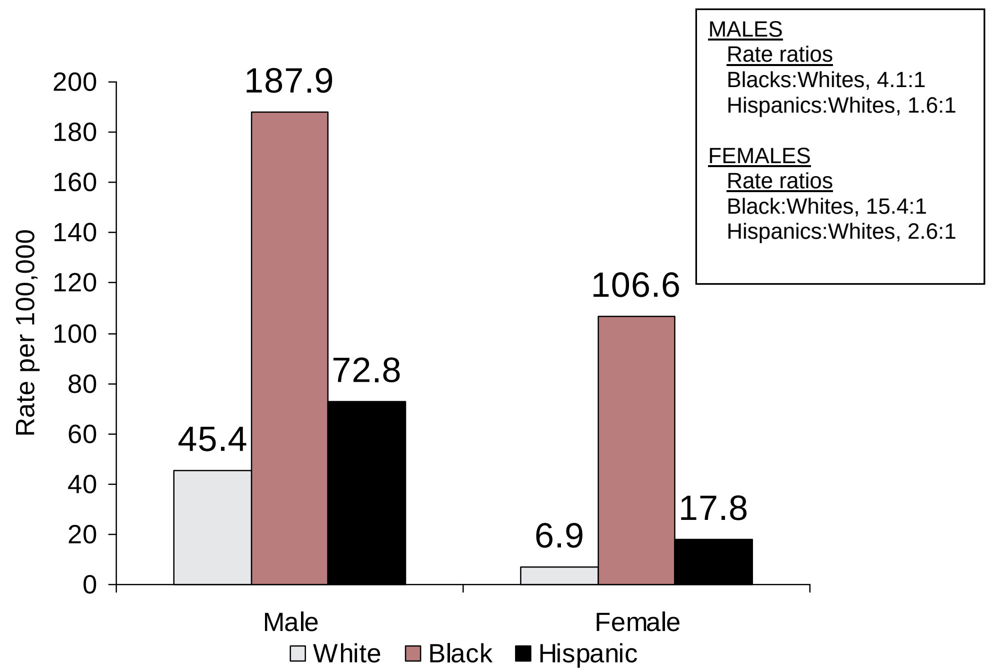
Figure 9. Percentage of Adult AIDS Cases by Race/Ethnicity, Florida, Compared with Percentage of Adult HIV Cases by Race/Ethnicity, Florida, 2008



*2008 Florida Population Estimates, Adults (Ages 13+), DOH, Office of Planning, Evaluation and Data Analysis
**Other includes Asian/Pacific Islanders, Native Alaskans/American Indians and people of mixed race.

Black men and, to an even greater extent, black women are over-represented in the HIV epidemic (Figure 10). The HIV case rate for 2008 is four times higher among black men than among white men. Among black women, the HIV case rate is 15 times higher than among white women. Hispanic male and Hispanic female rates are double the rates among their white counterparts.

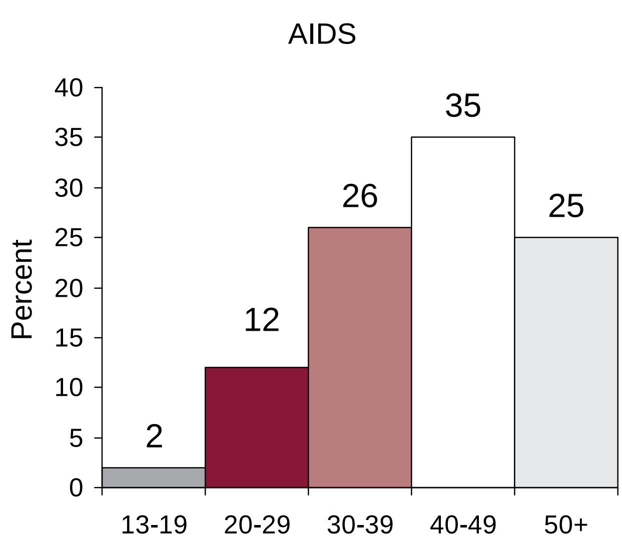
Figure 10. Adult HIV Cases and Case Rates per 100,000 Population
by Sex and Race/Ethnicity, Florida, 2008

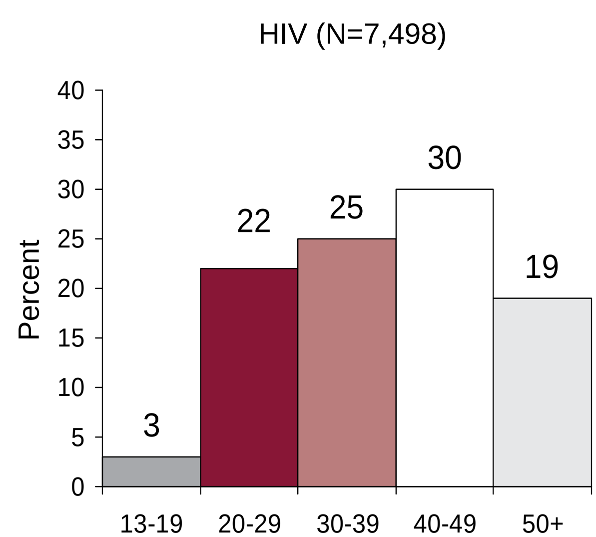


As in previous years, the greatest proportion of AIDS cases reported in 2008 was among persons 40 to 49 years old (35%) but this age group only accounts for 16% of the total population (Figure 11). The 30-39 age group was second, with 26% of the reported AIDS cases. The 20-29 age group accounted for 12% of the cases, and the 50 and older age group accounted for 25%.

Compared with AIDS cases, a greater proportion of HIV cases in 2008 was reported among those aged 20-29 (22%), those aged 30-39 (25%), and those aged 40-49 (30%). There was a lower proportion among those aged 13-19 (3%) and a higher proportion among those aged 20-29 years (22%), but a lower proportion for those aged 50 and older (19%), all of which is consistent with earlier detection of HIV cases.

Figure 11. Age Distribution of Florida's Adult AIDS Cases Compared with the
Age Distribution of Florida's Adult HIV Cases, 2008





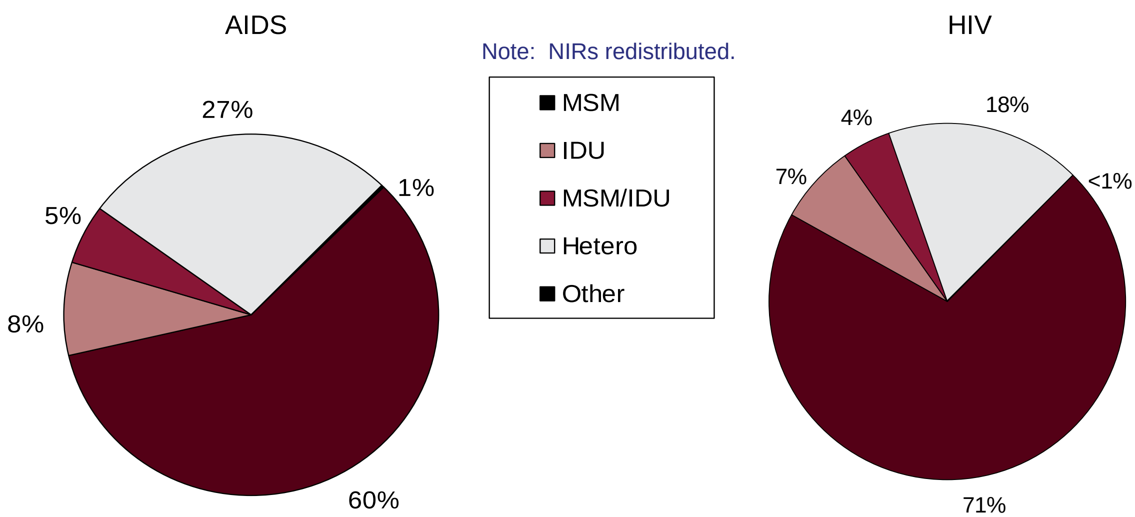
HIV/AIDS by Mode of Exposure

The dynamics of the HIV epidemic are different in each population; so multiple data sets must be used to compile a representative epidemiologic profile for HIV prevention, planning, and targeting of resources and outreach. The following data represent HIV and AIDS cases by mode of exposure. Cases reported with no identified risks (NIRs) have been redistributed into known risk categories, based on previous patterns of re-classification for NRIs once a risk has been identified.

Males

Among the male AIDS and HIV cases reported for 2008, MSM was the most common risk factor (60% and 71%, respectively) followed by cases with a heterosexual risk factor (27% for AIDS and 18% for HIV) (Figure 12). People with an IDU risk factor are similar among AIDS cases (8%) and HIV cases (7%).

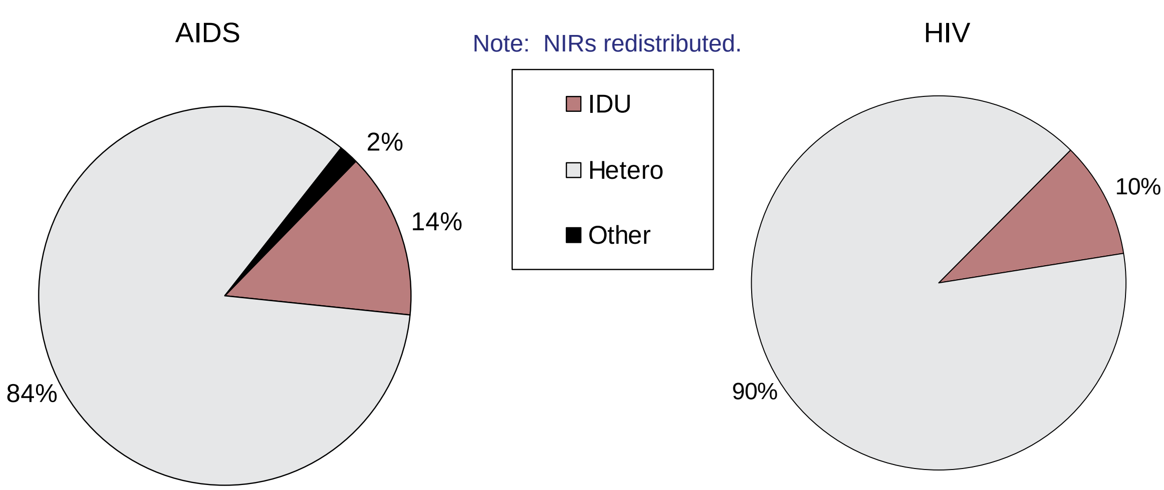
Figure 12. Adult Male AIDS and HIV Cases by Mode of Exposure, Florida, 2008



Females

Among the female AIDS and HIV cases reported for 2008, heterosexual contact was the highest risk factor (Figure 13).

Figure 13. Adult Female AIDS and HIV Cases by Mode of Exposure, Florida, 2008



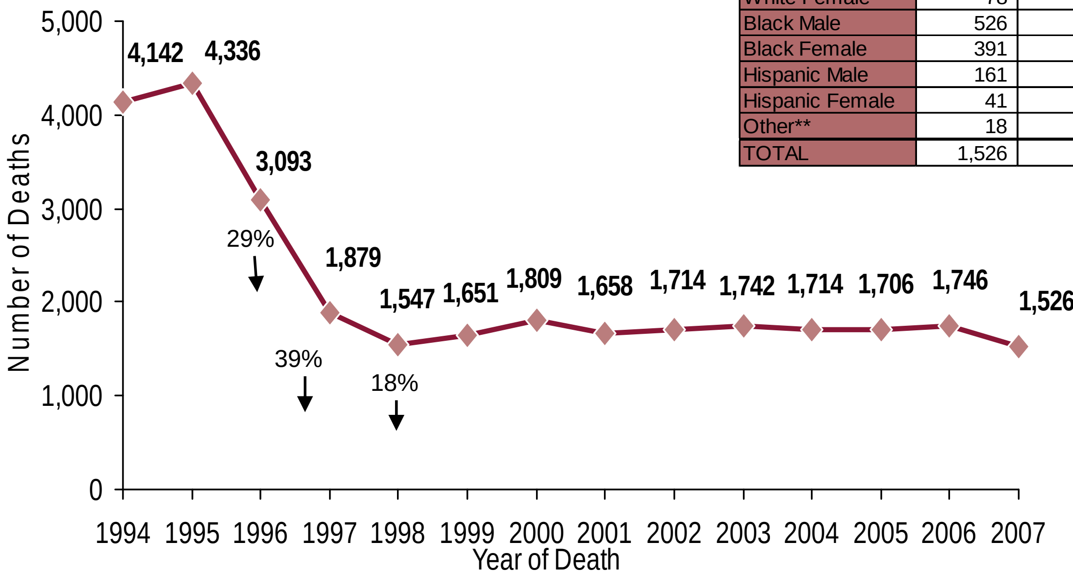
Prevalence Estimates of HIV/AIDS
Assessment of the extent of the HIV epidemic is an important step in community planning for HIV prevention and HIV/AIDS patient care. The HIV prevalence estimate, the estimated number of persons living with HIV infection, includes those living with a diagnosis of HIV or AIDS and those who may be infected but are unaware of their serostatus. Approximately 1,039,000 to 1,185,000 persons are currently living with HIV infection in the U.S. Florida has consistently reported 10%-12% of the national AIDS morbidity and currently accounts for 11% of all persons living with AIDS in the U.S. The Florida Department of Health now estimates that approximately 125,000 persons, or roughly 11.7% of the national total of persons living with HIV infection, are currently living in Florida as of the end of 2007.

Impact of HIV-related Deaths
As of December 31, 2008 a total of 114,057 AIDS cases had been reported in Florida. Of these cumulative cases, 62,565 (55%) were known to have died.

Annual numbers of HIV/AIDS deaths decreased markedly from 1995 to 1998, associated with the advent of highly active anti-retroviral therapy (HAART) in 1996. A leveling of the trend since 1998 may reflect factors such as viral resistance, late diagnosis of HIV, adherence problems, and lack of access to or acceptance of care (Figure 14). In 2007, the number of HIV/AIDS deaths decreased by 13% from the previous year, which is a 65% decrease since the peak year in 1995. Decreases among males and females were observed in all racial/ethnic groups, except white females where there was no change at all. Racial/ethnic disparities are evident in the death rate data.

Figure 14. Resident HIV deaths, by Year of Death, Florida, 1994–2007

Race/Ethnicity	2007	
	No.	rate *
White Male	311	5.6
White Female	78	1.3
Black Male	526	38.1
Black Female	391	26.3
Hispanic Male	161	8.8
Hispanic Female	41	2.2
Other**	18	3.9
TOTAL	1,526	8.3

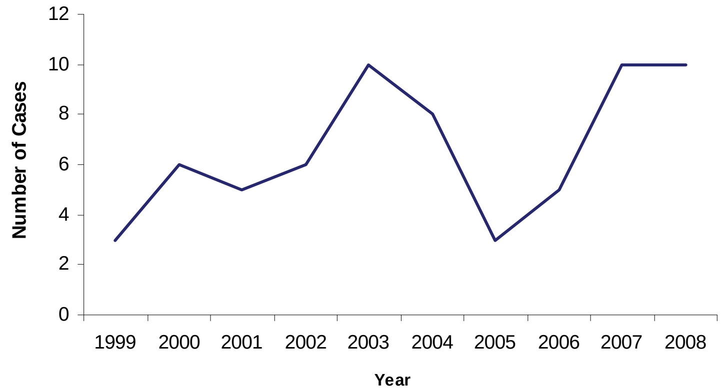


*Rates are expressed as deaths per 100,000 population based on 2006 Population Estimates, DOH, Office of Planning, Evaluation and Data Analysis

Brucellosis

Brucellosis: Crude Data	
Number of Cases	10
2008 incidence rate per 100,000	0.05
% change from average 5-year (2003-2007) reported cases	38.89
Age (yrs)	
Mean	49
Median	50.5
Min-Max	36 - 69

Figure 1.
Brucellosis Cases by Year Reported, Florida, 1999-2008

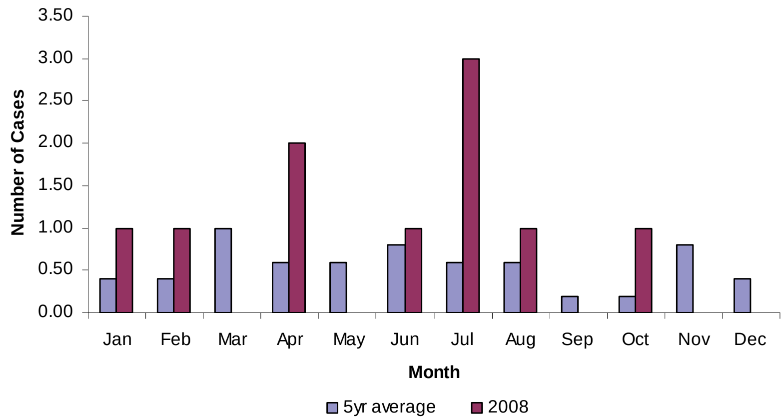


Disease Abstract
A total of 76 cases of human brucellosis were reported in Florida from 1999 to 2008, of which 67 (88%) were classified as confirmed. There were 10 cases reported in 2008, nine confirmed and one probable, compared with a 10 year annual average of 6.3. Speciation was provided in nine cases; seven *Brucella suis* and two *B. melitensis* infections were identified. Site of exposure was determined for all of the cases from 2008, with eight reported as being acquired in Florida and both *B. melitensis* cases being acquired in Mexico. Men accounted for all cases except for one infection acquired outside the U.S. (90% male). Affected people ranged from 36-69 years old. Incidence was highest in those aged 35-44 and 45-54, representing eight of the ten cases. Risk factors identified in the nine of the ten cases include: hunting feral pigs and/or handling carcasses with open cuts while not using appropriate personal protective equipment (six cases); consuming unpasteurized milk products (two, both imported); and eating meat from wild animals including pigs (one). The tenth case (culture positive for *B. suis*) denied pertinent exposure history other than eating semi-soft cheese made from cow's milk acquired from U.S. states reported to be free of *B. suis,* and also had immigrated 15 years previously from a country (Cuba) with a high prevalence of *B. suis*.

Hog hunting was a significant risk factor, with six of ten cases identified in 2008 as being associated with that activity. A seventh case was associated with preparing or eating meat from wild pigs or other wild animals. Cases acquired outside Florida and the U.S. were most likely to be associated with eating unpasteurized milk products. In addition, cultures from patients with *Brucella* infections posed a significant exposure risk for laboratory personnel. There were at least eight laboratory workers in private laboratories that were exposed to *Brucella* cultures while working with diagnostic specimens in 2008.

Brucella has potential for relapse or chronic infection, particularly for patients who do not receive complete and appropriate treatment, patients who delay treatment, and patients with underlying disease conditions. A hog hunter who was in remission for cancer had been diagnosed with brucellosis infection in 2007 and initially responded well to six weeks of antibiotic treatment following primary diagnosis. In the spring of 2008, when the patient's cancer went out of remission, a relapse of *Brucella* symptoms occurred and *Brucella suis* was isolated from his blood (not included in the 2008 case count). Two additional patients reported to have *B. suis* infections in 2008 were still symptomatic and culture-positive several months following primary diagnosis.

Figure 2.
Brucellosis Cases by Month of Onset, Florida, 2008



Prevention

Prevention can best be accomplished through education of animal workers and hunters on proper handling techniques: wearing gloves and protective clothing; working in properly ventilated areas; proper carcass and tissue disposal; disinfection of contaminated areas; and proper handling of modified live vaccines. Also important is requiring pasteurization of milk. Education should be provided to travelers and the general public on the risks of drinking or eating unpasteurized dairy products, especially products originating in countries where brucellosis is endemic in livestock. Outreach should be done for laboratory personnel to ensure knowledge of appropriate specimen handling (aerosol protection), and clinicians should be reminded to always forewarn laboratories working with patient culture samples if *Brucella* is in the differential diagnosis. Laboratories should be periodically reminded of state and federal confirmation and reporting requirements for this select agent. Continued surveillance and management programs for *Brucella* sp. in domestic livestock will keep exposure risk low in Florida. Surveillance is also important because *Brucella* has the potential for use as a bioterrorist agent.

References

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M.J. Corbel. 2006. Brucellosis in humans and animals. World Health Organization Press. Geneva, Switzerland.

Additional Resources

Information on human brucellosis in Florida can be obtained at the Florida Department of Health website at http://www.doh.state.fl.us/Environment/medicine/arboviral/Zoonoses/Zoonotic-brucellosis.html

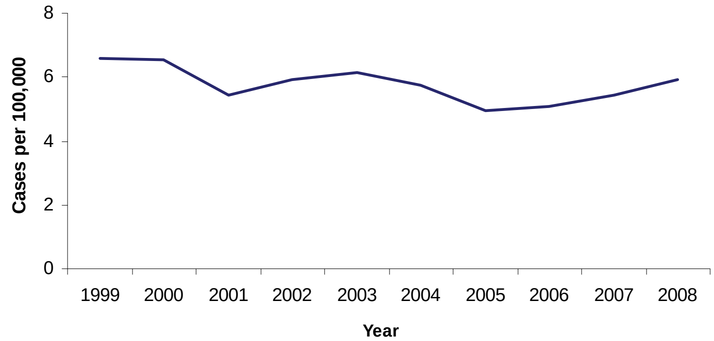
Additional information can also be found at the United States Department of Agriculture, Animal and Plant Health Inspection Services website at http://www.aphis.usda.gov/animal_health/animal_diseases/brucellosis/

As well as the Centers for Disease Control and Prevention website at http://www.cdc.gov/ncidod/dbmd/diseaseinfo/brucellosis_g.htm

Campylobacteriosis

Campylobacteriosis: Crude Data	
Number of Cases	1,118
2008 incidence rate per 100,000	5.92
% change from average 5-year (2003-2007) incidence rate	8.25
Age (yrs)	
Mean	31.38
Median	28
Min-Max	<1 - 93

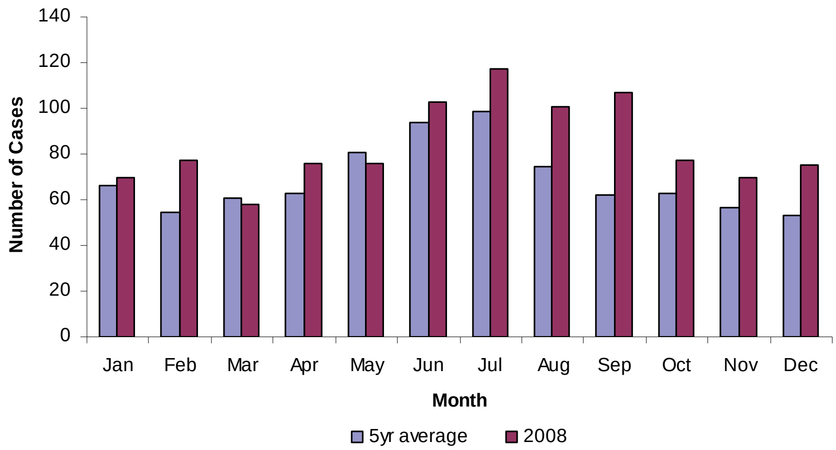
Figure 1.
Campylobacteriosis Incidence Rate by Year Reported, Florida, 1999-2008



Disease Abstract

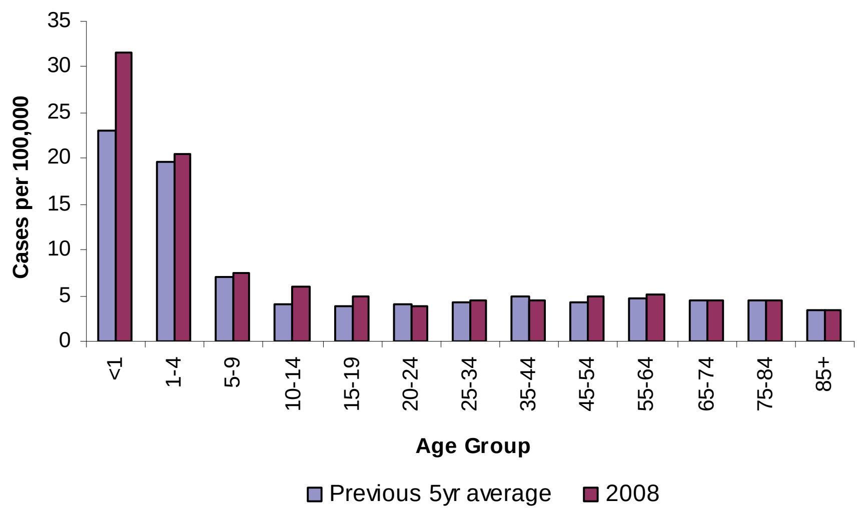
The incidence rate for campylobacteriosis had declined slightly from 1999 through 2005, but has been increasing since 2005 (Figure 1). In 2008, there was an 8.25% increase in comparison to the average incidence from 2003-2007. A total of 1,118 cases were reported in 2008, of which 95.89% were classified as confirmed. The number of cases reported tends to increase in the summer months but there were a high number of cases reported in the fall of 2008 compared to the previous 5-year average. In 2008, the number of cases exceeded the previous 5-year average in all months of the year except March and May (Figure 2). The highest incidence occurs among infants <1 year old and children aged 1-4 years (Figure 3). Overall, 5.72% of the campylobacteriosis cases were classified as outbreak-related as compared to 7.2% in 2007.

Figure 2.
Campylobacteriosis Cases by Month of Onset, Florida, 2008



Campylobacteriosis was reported in 60 of the 67 counties in Florida. Counties in north-central and southwestern Florida reported the highest incidence rates.

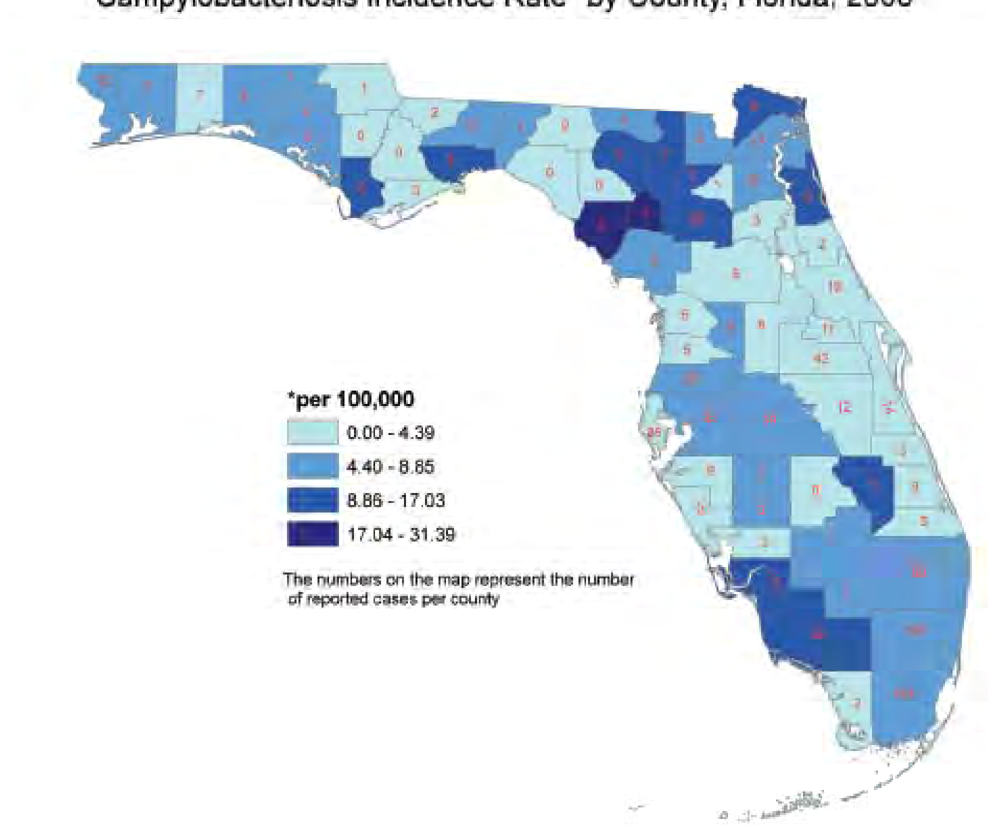
Figure 3.
Campylobacteriosis Incidence Rate by Age Group, Florida, 2008



Prevention

The likelihood of contracting campylobacteriosis can be reduced by cooking all meat products thoroughly, particularly poultry. Avoid cross-contamination by making sure utensils, counter tops, cutting boards and sponges are cleaned or do not come in contact with raw poultry or other meat. Wash hands thoroughly before, during, and after food preparation. Do not allow fluids from raw poultry or meat to drip on or touch other foods. Consume only pasteurized milk, milk products, or juices. Additionally, it is important to wash hands after coming into contact with any animals or their environment.

Campylobacteriosis Incidence Rate* by County, Florida, 2008



References

David L. Heymann (ed.), *Control of Communicable Diseases Manual*, 18th ed., American Public Health Association Press, Washington, District of Columbia, 2004.

Additional Resources

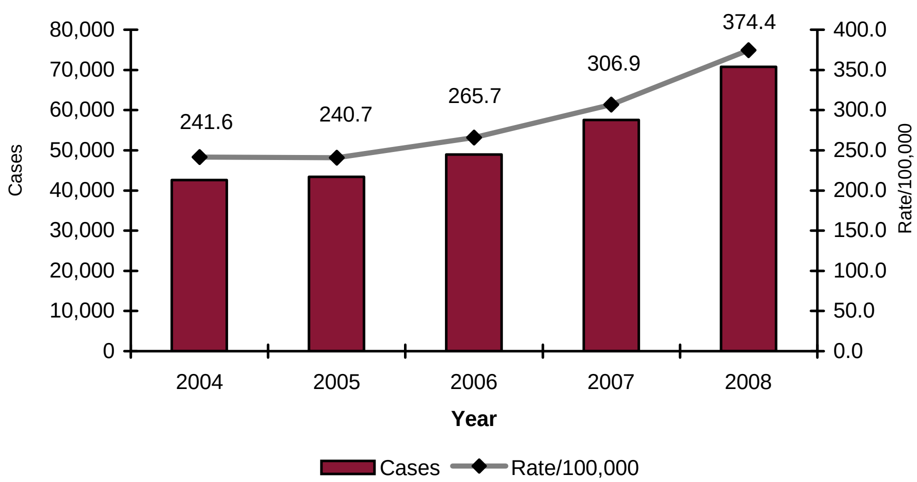
Disease information is available from the Centers for Disease Control and Prevention (CDC) at http://www.cdc.gov/ncidod/dbmd/diseaseinfo/campylobacter_g.htm

Chlamydia

Disease Abstract

Chlamydia remains the most commonly reported sexually transmitted infection in Florida and the most prevalent sexually transmitted bacterial infection reported among 15-24 year olds. Reported chlamydia cases in Florida have increased 66% since 2004 (Figure 1). In 2008, there were 70,751 chlamydia cases reported in Florida, or 374.4 cases per 100,000 population. Although the prevalence of chlamydia is the highest among those under 25 years of age, specific populations, i.e. females and minorities, bear a huge burden of this infection. The vast differences in adverse outcomes, higher susceptibility to infection with STDs, and a combination of other factors leave adolescents and young adults disproportionately affected with chlamydia compared to older populations; however, chlamydia continues to increase in all age groups.

Figure 1. Reported Cases of Chlamydia by Year, Florida, 2004-2008



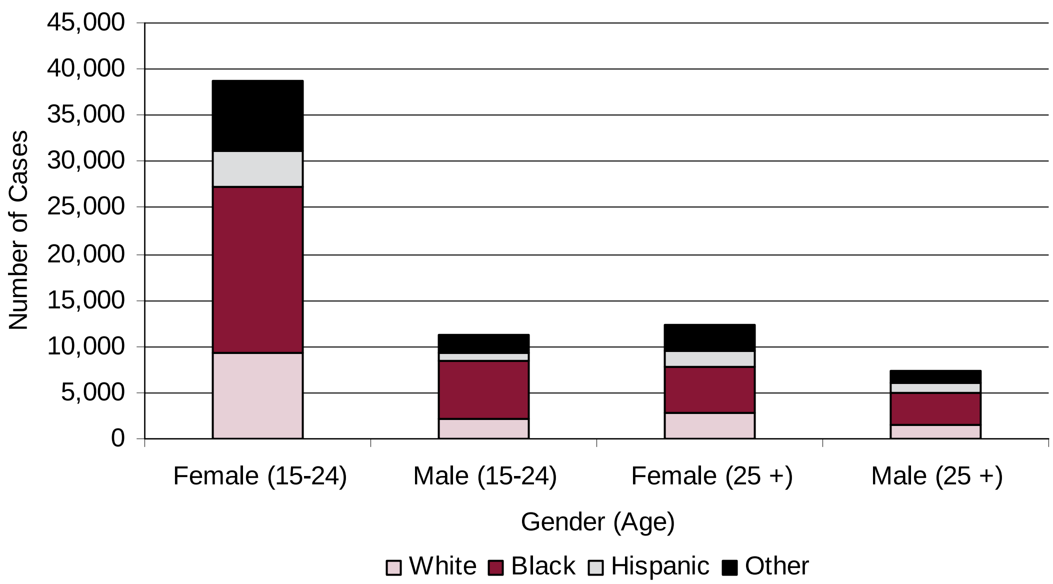
Persons between the ages of 15-24 only represented 12% of Florida's population in 2008, yet account for 71% of all reported chlamydia cases in Florida. In this age cohort, over 50,000 cases were reported in 2008 (Table 1). From 2007 to 2008, reported cases in this population increased by 21.8%. These Florida-specific trends parallel national data which also indicate infection is most prevalent in women under the age of 25. In 2008 and preceding years, the highest number of cases in females was reported in the 15-24 age group. When that age group is broken down further, the highest rate is among females 15-19 (3,280.0 per 100,000 population), which is the highest rate for any gender/age grouping. The rate for women in the 20-24 age group was slightly lower at 3,238.7 per 100,000 population.

Table 1. Rate/100,000 For Select Age Groups, 2008		
Age Groups	**Cases Reported**	**Rate/100,000**
15-19	23,739	1,946.1
20-24	26,456	2,168.6
25-29	11,305	972.6
30-34	4,315	379.0
35-39	2,050	169.5
40-44	1,027	78.6

Much of the difference between the rates by gender is due to the strong clinical recommendations for women and the lack of screening in men. Although the rate of chlamydia in men is lower overall than it is in women, similar age distributions are seen within each gender (Figure 2). Men 15 to 24 years old had almost double the number of reported cases compared to those over 25, which is similar to what is seen in women. However, when that age group is broken down further, the incidence is reversed from what it is in women. In 2008, 20 to 24 year old men had the highest rate among male age groups (1,136.9 per 100,000 population). This rate was trailed by a rate of 654.5 per 100,000 population for males between the ages of 15-19. The most important risk factor for chlamydial infection is age. When data is examined by age in single years, rather than as age groups, reported cases peaked at the age of 19 with a gradual decline in number of cases as age in years increased above that age.

Disparities among racial and ethnic groups exist in the number of cases reported annually. Non-Hispanic black female adolescents and young adults have higher rates compared to non-Hispanic white and Hispanic populations in Florida. Among women, the case rate for non-Hispanic black 15 to 24-year-olds is nearly five times higher than the second highest rate, which is in non-Hispanic whites 15-24 (733.68 per 100,000 population). In all cases reported, non-Hispanic blacks accounted for 47.1% of the chlamydia cases in 2008, non-Hispanic whites accounted for 22.6% of cases, Hispanics (white or black) accounted for 10.4% of cases, and people in other or unidentified racial-ethnic groups accounted for 19.9% of cases.

Figure 2. Reported Cases of Chlamydia by Race/Ethnicity, Gender, Age, 2008



Prevention

The Centers for Disease Control and Prevention (CDC) recommends annual chlamydia screening for all sexually active women under age 26, as well as older women with risk factors such as new or multiple sex partners. Routine screening is necessary for these populations because approximately three quarters of infected women and greater than half of infected men have no symptoms. If untreated, chlamydia may lead to complications including infertility and ectopic pregnancy.

Treating infected patients prevents transmission to sex partners. In addition, treating pregnant women usually prevents transmission of *C. trachomatis* to infants during birth. Treatment of sex partners helps to prevent reinfection of the index patient and infection of other partners. Co-infection with *C. trachomatis* frequently occurs among patients who have gonorrhea; therefore, presumptive treatment of those patients for chlamydia is recommended. Main treatment options include azithromycin (1 g orally in a single dose) or doxycycline (100 mg orally twice a day for seven days). Recent studies show that azithromycin and doxycycline were equally effective in treating chlamydia with microbial cure rates of 97% and 98%, respectively. Doxycycline costs less than azithromycin and has no higher risk for adverse events; however, if it is not likely that a patient will comply with the multi-day dosing schedule for doxycycline, azithromycin should be prescribed. Erythromycin, ofloxacin, and levofloxacin are all effective in treating chlamydia infection but have disadvantages such as more severe side effects or cost. Other quinolones either are not reliably effective against chlamydia infection or have not been evaluated adequately.

The CDC recommends that to maximize compliance with recommended therapies, medications for chlamydia infections should be dispensed on site, and the first dose should be directly observed. Additionally, people being treated for chlamydia should abstain from sexual intercourse for seven days after their single dose of azithromycin or until completion of the 7-day regimen for one of the other recommended medications. To minimize the risk for re-infection, patients should abstain from sexual intercourse until all of their sex partners are treated.

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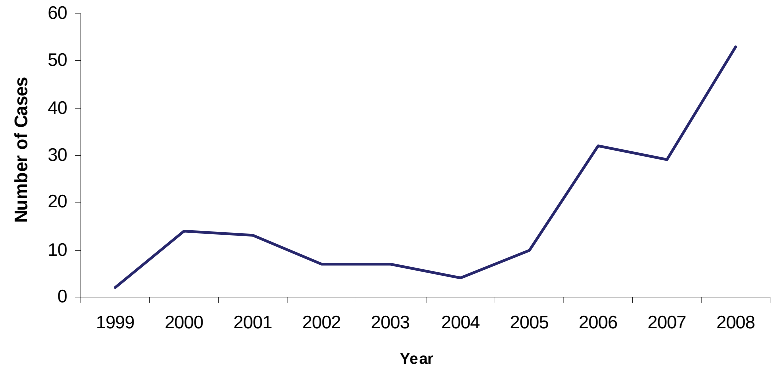
Centers for Disease Control and Prevention. “Sexually Transmitted Diseases Treatment Guidelines, 2006.” *MMWR*, 2006, Vol. 55, No. RR-11, pp. 38-42.

Lau C-Y, Qureshi AK. “Azithromycin versus doxycycline for genital chlamydial infections: a meta-analysis of randomized clinical trials.” *Sexually Transmitted Disisease*, 2002, Vol. 29, pp. 497–502.

Ciguatera Fish Poisoning

Ciguatera: Crude Data	
Number of Cases	53
2008 incidence rate per 100,000	0.28
% change from average 5 year (2003-2007) incidence rate	207.73
Age (yrs)	
Mean	46
Median	48
Min-Max	5 - 94

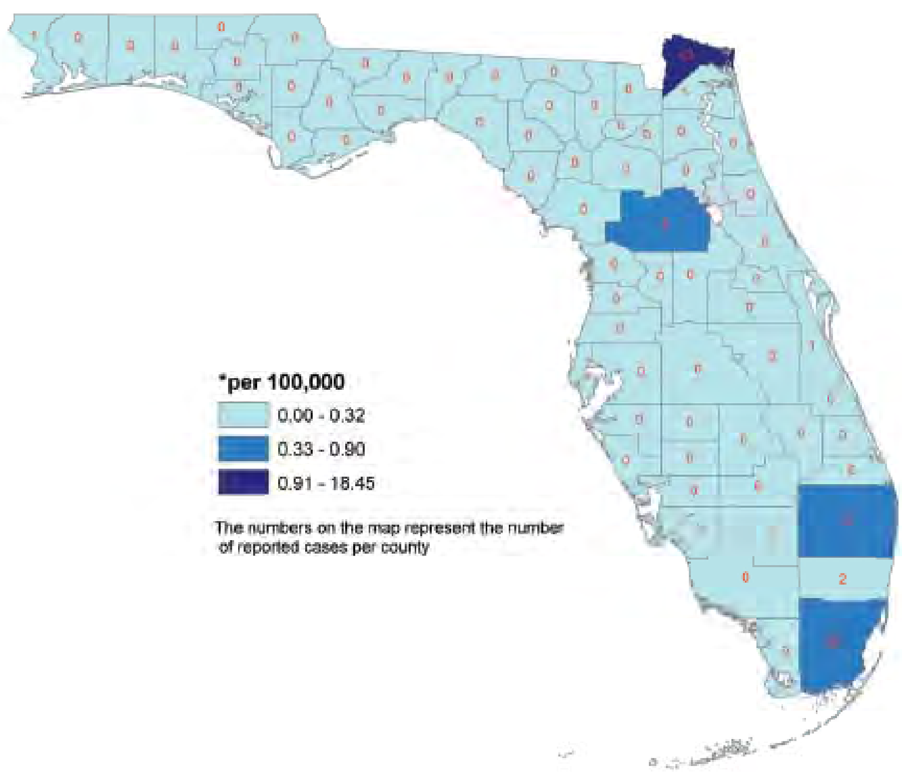
Figure 1.
Ciguatera Cases by Year Reported, Florida, 1999-2008



Disease Abstract

The epidemiology of ciguatera fish poisoning in the U.S. is not known. This may be due to lack of recognition among the medical community, the non-fatal nature of the disease, and the short duration. However, the epidemiology in Florida is more complete, although it is likely that there is significant under-reporting. In 2008, a total of 11 ciguatera outbreaks were reported in Florida between January-July 2008, resulting in 51 cases. In comparison, from January-July of 2007, six ciguatera outbreaks were reported and seven were reported in 2006. The state's 10 year average during 1998-2007 was 3.1 outbreaks during this same time period. In six of 2008's 11 ciguatera outbreaks, ciguatoxin was laboratory confirmed. Species of fish implicated in these outbreaks include: grouper (7), barracuda (2), eel (1), and mahi-mahi (1). The Food and Drug Administration (FDA) product trace-back identified a common seafood distributor in two of the seven grouper outbreaks. Grouper sold by that implicated vendor was of Bahamian origin. The FDOH Aquatic Toxin and Food and Waterborne Disease Programs are working on an educational campaign to target this difficult-to-reach audience of recreational fishers. Note: the number of outbreak-related cases may not match Merlin case report numbers due to the fact that outbreaks often include ill people who are not residents of the State of Florida (i.e., visitors who were exposed and got sick while in Florida), or ill people were not available for interview, and were therefore not posted in Merlin. Also, outbreak cases may not match with Merlin across counties (often people cross county boundaries to eat in other counties). Outbreaks are generally reported by county/state of exposure; individual reportable diseases are generally reported by county/state of residence.

Ciguatera Incidence Rate* by County, Florida, 2008



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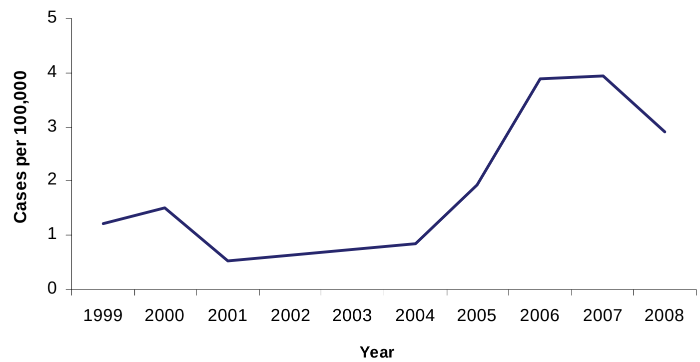
Walderhaug M, “Ciguatera,” *Foodborne Pathogenic Microorganisms and Natural Toxins Handbook*, U.S. Food and Drug Administration, 1992, available at http://www.cfsan.fda.gov/~mow/chap36.html.

Cryptosporidiosis

Cryptosporidiosis: Crude Data	
Number of Cases	549
2008 incidence rate per 100,000	2.91
% change from average 5-year (2003-2007) incidence rate	25.54
Age (yrs)	
Mean	27.86
Median	25
Min-Max	<1 - 92

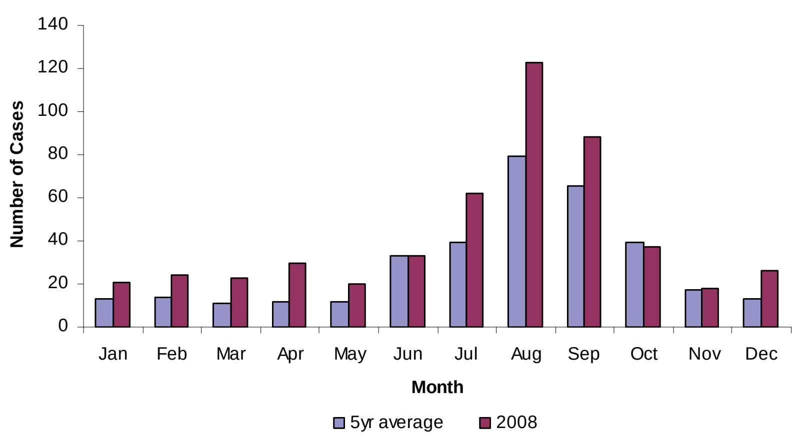
Figure 1.
Cryptosporidiosis Incidence Rate by Year Reported, Florida, 1999-2008



Disease Abstract

A total of 549 cases of cryptosporidiosis were reported in 2008, of which 88.52% were classified as confirmed. Thirteen percent of all reported cases were classified as outbreak-related, which is a decrease from 16% the previous year; 5% of cases were acquired outside the U.S. Since 2001, the incidence rate for cryptosporidiosis has increased, with a sharp increase observed since 2004 (Figure 1). The incidence rate in 2007 was 138% higher than the average incidence from 2002-2006 but only slightly higher than the previous year (2006: 717 cases; 3.89 cases/100,000 population). However, in 2008 there was a decrease in the incidence rate (2.91 cases/100,000 population) below that in 2006. Seasonal increases in cryptosporidiosis are commonly observed during the summer months when exposure to recreational water settings is more common. In 2008, the number of cases exceeded the previous 5-year average in all months but three, though the increase was particularly great in the summer months (Figure 2). The overall increase in cryptosporidiosis over the past decade is consistent with national trends and is likely due to a combination of actual increased disease incidence, increased clinical recognition, and increased diagnostic testing. Increased use of recreational water settings by young children may account for increases in disease incidence. The recent introduction of nitazoxanide, the first licensed treatment for the disease, may have influenced clinical practice because diagnostic testing for *Cryptosporidium* now can lead to specific treatment. Testing may also lead to case reporting which would explain the increase in cases seen between 2004 and 2007.

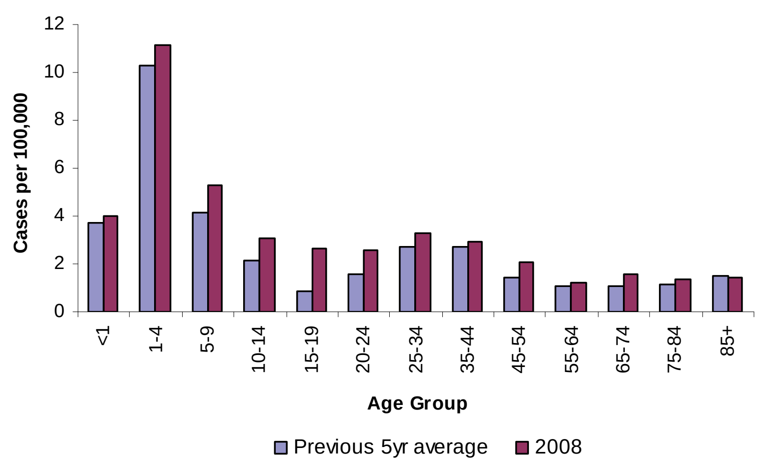
Figure 2.
Cryptosporidiosis Cases by Month of Onset, Florida, 2008



Rates are higher among children <10 years old, with the highest rates occurring in the 1-4 age group (20.43 per 100,000) (Figure 3). However, there has been a significant increase in incidence among those aged 10-24 years above the previous 5-year average. In 2008, approximately 29% of reported cases among those less than five years old attended day care centers. The smaller second peak in incidence among adults 20 to 44 years old may be attributed to family contact with infected children (Figure 3).

Cases of cryptosporidiosis were reported in 51 of the 67 counties in Florida. The county with the highest incidence, Clay, reported 24.1% of their cases as being outbreak-associated. Sarasota County had a lower incidence rate, but reported 76.5% of their cases as being associated with a single outbreak among swim team participants. Wakulla County reported all four of their cases as outbreak associated and they were all linked to a single daycare that has “waterplay”. The children were allowed access to a small waterslide and play pool at the daycare location. Additional counties with a high proportion of outbreak associated cases include Duval (41.2%) and Broward (12.7%).

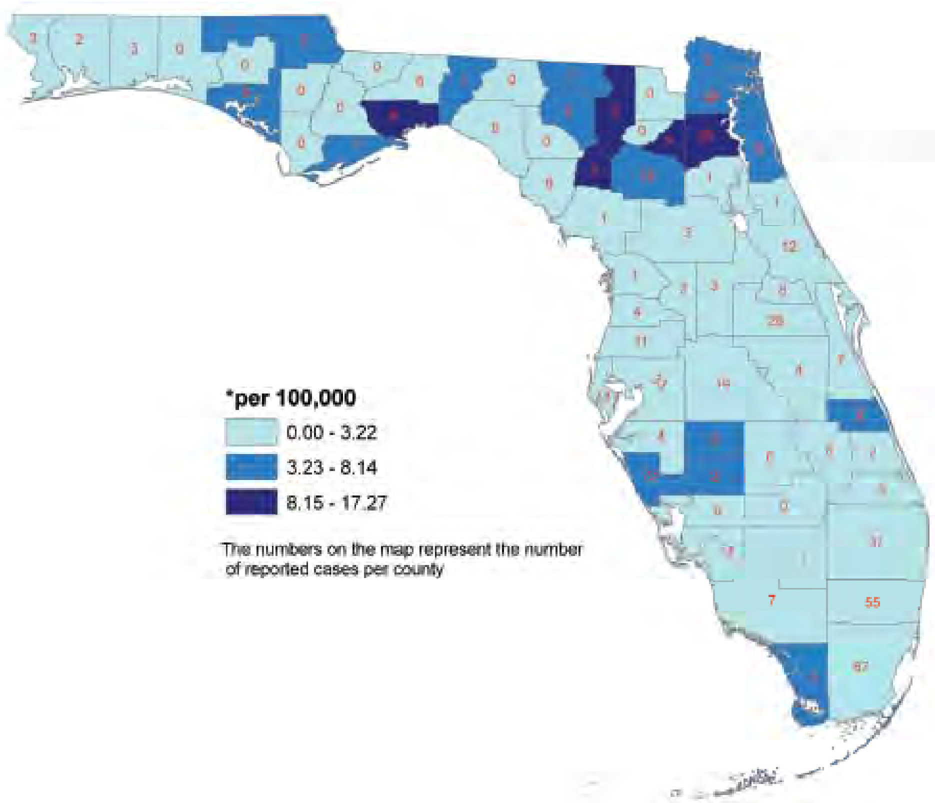
Figure 3.
Cryptosporidiosis Incidence Rate by Age Group, Florida, 2008



Prevention

The likelihood of contracting cryptosporidiosis can be reduced by practicing good hand hygiene, such as washing hands before handling or eating food and after diaper changing. Water in recreational settings, such as swimming pools or water parks, should not be ingested or swallowed. Outbreaks associated with recreational water, especially water parks and interactive fountains, can be prevented by following established guidelines for management of these facilities. The likelihood of contracting cryptosporidiosis in a recreational water setting can be reduced by practicing healthy swimming behaviors. Avoid swallowing pool water or even getting it in your mouth. Shower before swimming and wash your hands after using the toilet or changing diapers. Take children on bathroom breaks or check diapers often. Change diapers in a bathroom and not at poolside and thoroughly clean the diaper changing area. Protect others by not swimming if you are experiencing diarrhea (this is essential for children in diapers). Swimming is not recommended for at least two weeks after diarrhea stops.

Cryptosporidiosis Incidence Rate* by County, Florida, 2008



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Centers for Disease Control and Prevention, “Summary of notifiable diseases – United States, 2006,” *Morbidity and Mortality Weekly Report*, Vol. 55, No. 53, 2006.

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L.M. Fox, et al., “Nitazoxanide: a new thiazolide antiparasitic agent.” *Clinical Infectious Diseases*, Vol. 40, 2005, pp. 1173-80.

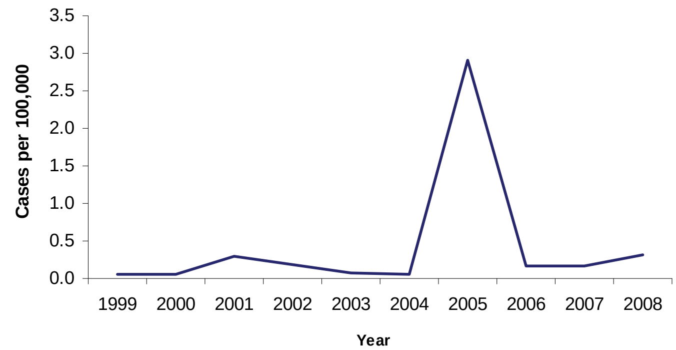
Additional Resources

Disease information is available from the Centers for Disease Control and Prevention (CDC) at http://www.cdc.gov/ncidod/dpd/parasites/cryptosporidiosis/factsht_cryptosporidiosis.htm.

Cyclosporiasis

Cyclosporiasis: Crude Data	
Number of Cases	59
2008 incidence rate per 100,000	0.31
% change from median 5 year (2003-2007) reported cases	81.23
Age (yrs)	
Mean	49.75
Median	49
Min-Max	3 - 83

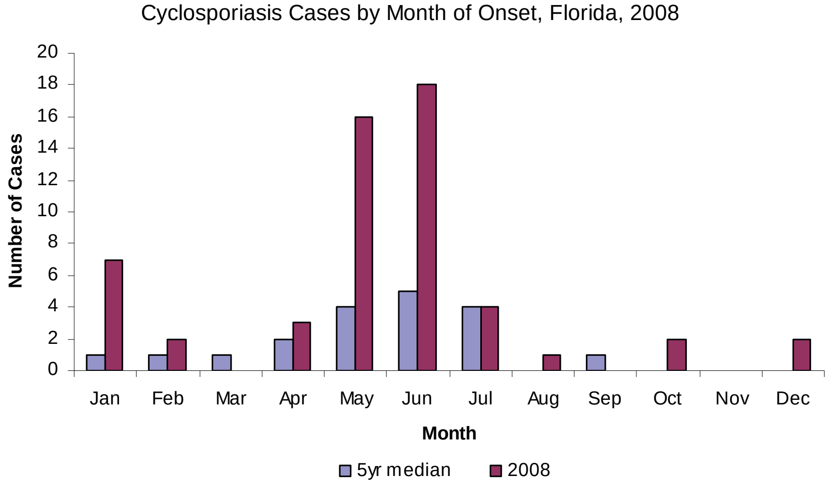
Figure 1.
Cyclosporiasis Incidence Rate by Year Reported, Florida, 1999-2008



Disease Abstract

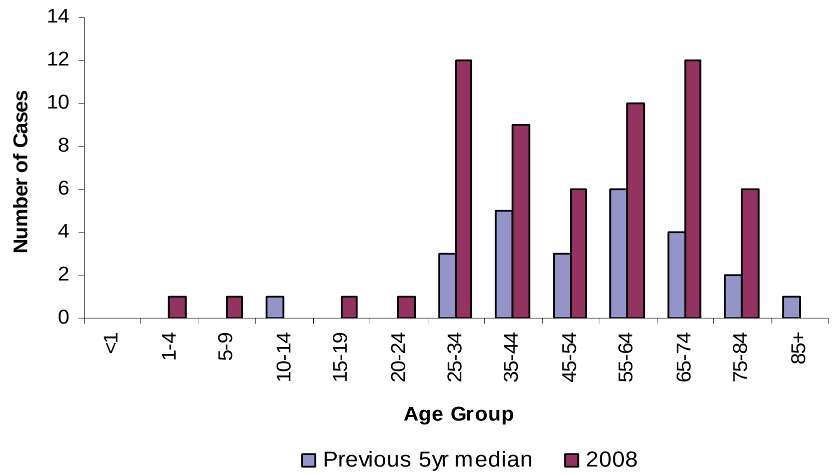
With the exception of a large outbreak of cyclosporiasis in 2005 (493 cases from Florida; see the notable outbreaks section of the 1997-2006 Annual Morbidity Statistics Report for more details), the incidence rate for cyclosporiasis has remained stable in recent years (Figure 1). In comparison to the median incidence for the last five years, the incidence in 2008 has increased by 81.23%, with a total of 59 cases reported. Thirteen percent of the cases reported in 2008 were considered outbreak-associated. In 2008, the number of cases by month of disease onset met or exceeded the previous 5-year median during all months of the year when cases were reported (Figure 2). The peak in late spring and early summer may reflect the seasonal variation of endemic cyclosporiasis in countries who export fruits and vegetables to the U.S. However, the large increase in cases occurring in May and June of 2008 prompted the Food and Waterborne Disease Program within the Florida Department of Health to launch a case-control study aimed at discovering if there was a common source for these cases. No definitive conclusion was reached regarding these cases and the case numbers returned to their expected levels shortly after. Please see the "Summary of Notable Outbreaks and Case Investigations" section for further details.

Figure 2.
Cyclosporiasis Cases by Month of Onset, Florida, 2008



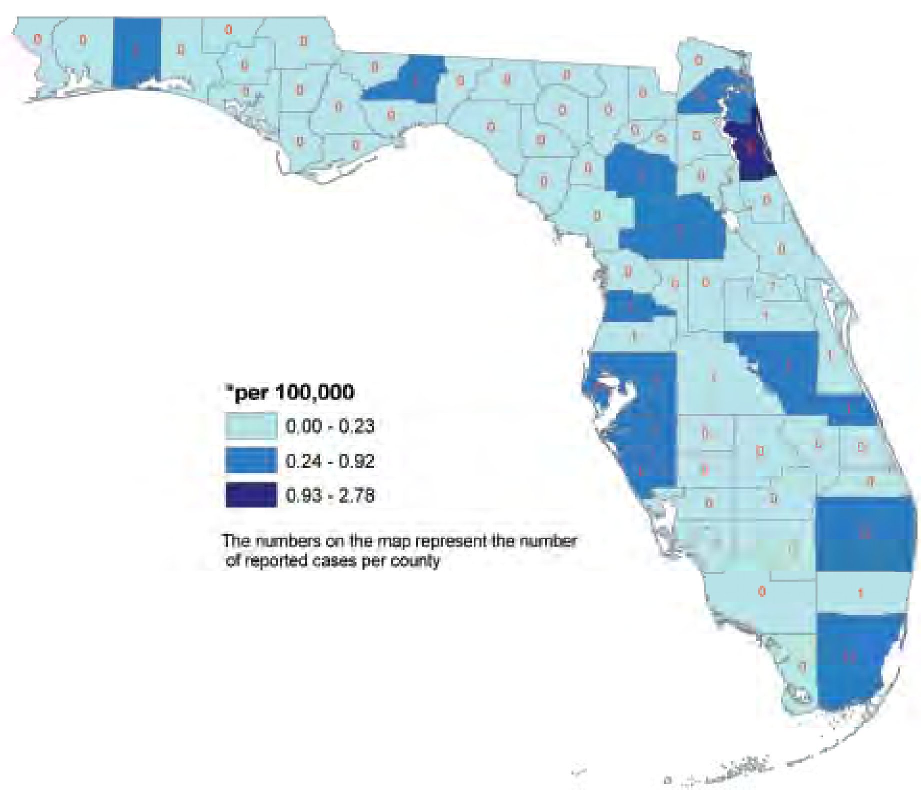
In 2008, 93% of the cases were reported in those who were between the ages of 25 and 84, with the largest increase occurring in the 25-34 age group (Figure 3).

Figure 3.
Cyclosporiasis Cases by Age Group, Florida, 2008



Cyclosporiasis was reported in 21 of the 67 counties in Florida, with the largest number of cases occurring in Palm Beach County.

Cyclosporiasis Incidence Rate* by County, Florida, 2008



Additional Resources

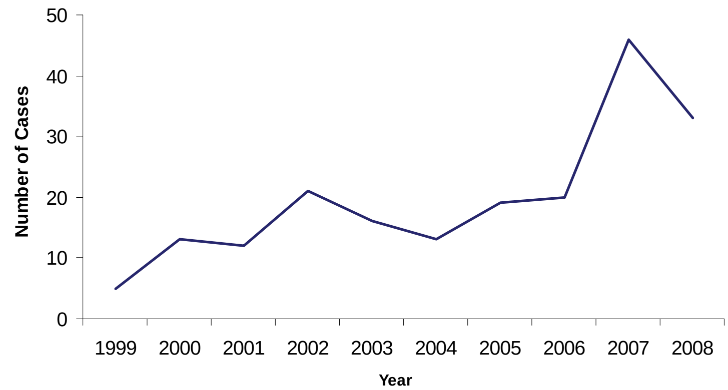
Disease information is available from the Centers for Disease Control and Prevention (CDC) at http://www.cdc.gov/ncidod/dpd/parasites/cyclospora/default.htm

David L. Heymann (ed.), *Control of Communicable Diseases Manual*, 18th ed., American Public Health Association Press, Washington, District of Columbia, 2004.

Dengue

Dengue Fever: Crude Data	
Number of Cases	33
2008 incidence rate per 100,000	0.17
% change from average 5-year (2003-2007) incidence rate	37.82
Age (yrs)	
Mean	43.85
Median	40
Min-Max	<1 - 80

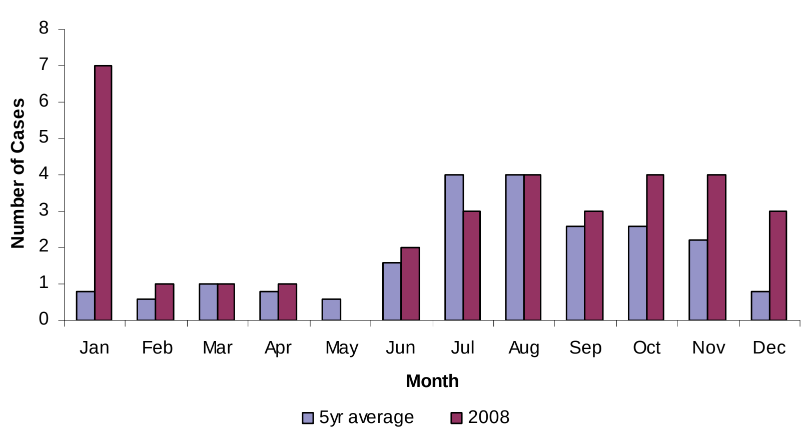
Figure 1.
Dengue Fever Cases by Year Reported, Florida, 1999-2008



Disease Abstract

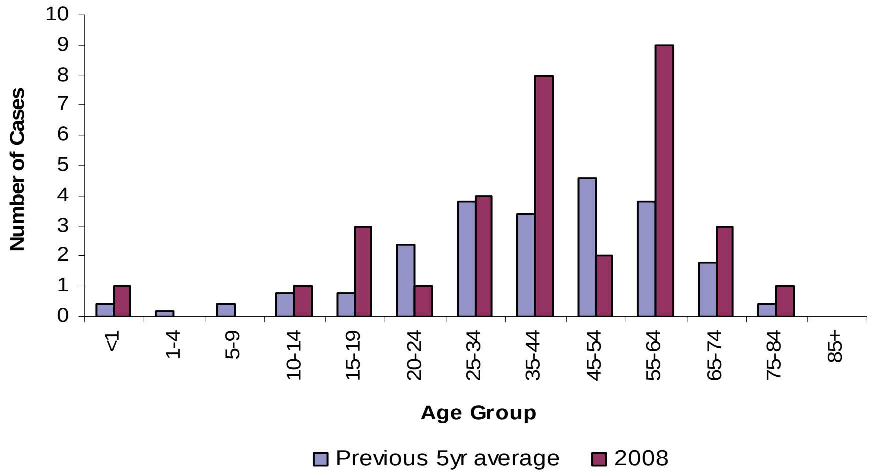
Prior to 1998, dengue virus (DENV) infection was not often considered among diagnoses for ill travelers returning from areas where dengue is endemic. A 1998 study on an active surveillance program for recent dengue infections in Florida led to an increase in awareness as well as enhanced laboratory capacity to test for the viruses. Since 1998, dengue cases have been reported in Florida each year (Figure 1). The number of imported cases reported typically ranged from 10-20 per year until 2007 when 46 cases were reported; 33 cases were reported in 2008. This increase may be due to epidemics outside the continental U.S., including Puerto Rico, the Dominican Republic, Central and South America, and Asia, which began in 2007 and are ongoing in many instances. Increased activity in Puerto Rico and the Caribbean is especially concerning for Florida given the many Floridians that travel to the area. Though local transmission has not been reported in recent years, the disease was previously endemic to Florida and competent mosquito vectors are still present. Typically, disease onset for travelers returning to Florida peaks during mid-summer and fall, though cases are reported year-round (Figure 2). There were a large number of cases reported in January; this may have been due to holiday travel as well as late reporting as several cases who had onset dates in 2007.

Figure 2.
Dengue Fever Cases by Month of Onset, Florida, 2008



In 2008, 57% percent of cases were male, and 27% occurred among those 55-64 years of age. In 2008, 28% of dengue cases reported travel history to Puerto Rico, 15% traveled to the Dominican Republic, 24% traveled to other countries in the Caribbean, 18% traveled to South or Central America, and 9% traveled to Asia. The remaining 6% were listed as unknown.

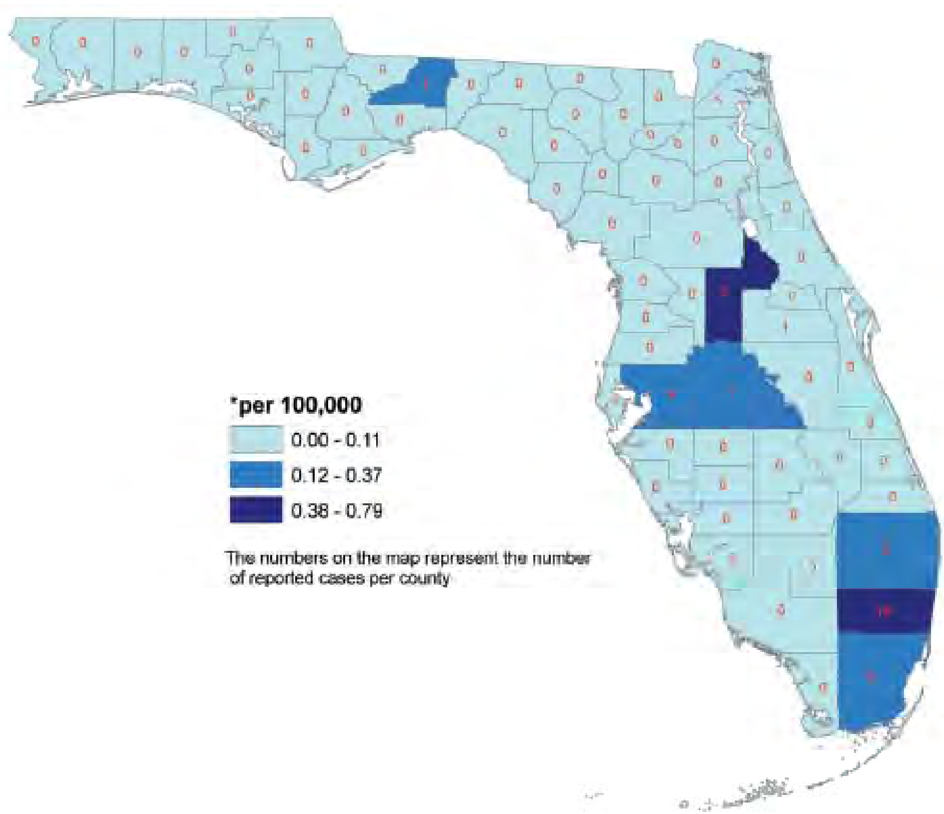
Figure 3.
Dengue Fever Cases by Age Group, Florida, 2008



Prevention

There is currently no vaccine available against DENV infection. Travelers to dengue-endemic countries should be warned of the risk of disease and instructed to avoid mosquito bites. Use insect repellents that contain DEET or other EPA-approved ingredients such as Picaridin, oil of lemon eucalyptus, or IR3535. Avoid spending time outdoors during daytime hours when disease-carrying mosquitoes are most likely to be seeking a blood meal, and drain any standing water in containers around the home. Dress in long sleeves and long pants to protect your skin from mosquitoes. Also, try to remain in well-screened or air-conditioned areas.

Dengue Fever Incidence Rate* by County, Florida, 2008



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J. Gill, L.M. Stark, G.G. Clark. “Dengue Surveillance in Florida, 1997-1998.” *Emerging Infectious Diseases*, Vol. 1, 2000, pp.30-35.

Additional Resources

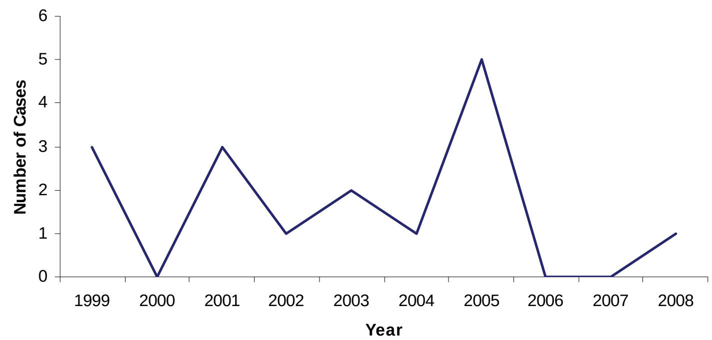
Additional information on DENV and other mosquito-borne diseases can be found in the *Surveillance and Control of Arthropod-borne Diseases in Florida Guidebook*, online at http://www.doh.state.fl.us/environment/medicine/arboviral/pdf_files/2009MosquitoGuide.pdf.

Disease information is also available from the Centers for Disease Control and Prevention (CDC) website at http://wwwn.cdc.gov/travel/yellowBookCh4-DengueFever.aspx.

Eastern Equine Encephalitis

Eastern Equine Encephalitis: Crude Data	
Number of Cases	1
2008 incidence rate per 100,000	0.01
% change from average 5 year (2003-2007) reported cases	-40.49
Age (yrs)	
Mean	N/A
Median	N/A
Min-Max	N/A

Figure 1.
Eastern Equine Encephalitis Cases by Year Reported, Florida, 1999-2008

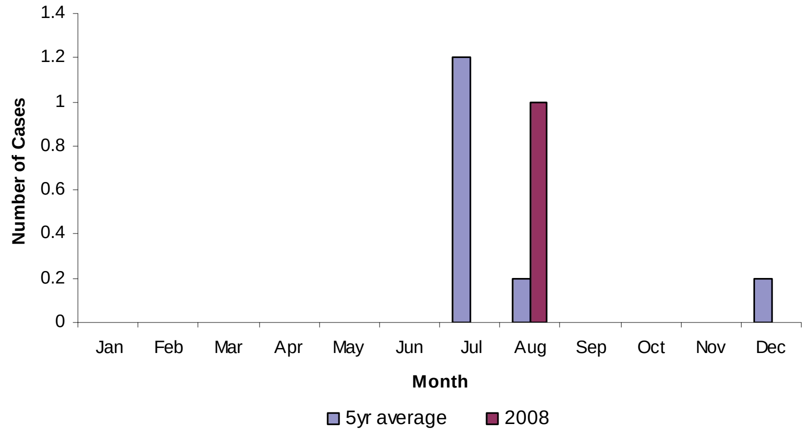


Disease Abstract

Eastern equine encephalitis virus (EEEV) is a mosquito-borne alphavirus that was first identified in the 1930s. EEEV occurs in natural cycles involving birds and *Culiseta melanura* in freshwater swampy areas, with a peak of activity occurring between May and August. In this usual cycle of transmission (enzootic cycle), the EEEV remains in the swampy areas, as the mosquito involved prefers to feed upon birds, and does not usually bite humans or other mammals. Most human cases are thought to occur when the virus occasionally moves into other mosquito species that are more likely to bite people and act as bridge vectors.

All evidence indicates that human eastern equine encephalitis (EEE) does not have epidemic potential in Florida, but can cause severe disease in those infected. Continuous surveillance since 1957 has documented only 78 human cases (average 1.5 cases per year, range: 0-5), including one in 2008. The cases reported each year from 1999 to 2008 suggest that it remains infrequent (Figure 1). The peak illness onset period for human cases is from June to August (Figure 2), though transmission can occur year-round. Unlike some other mosquito-borne diseases, which typically affect the elderly, EEE tends to affect individuals in younger age groups (Figure 3). In fact, of the cases reported since 1998, 63% were in those <15 years of age. Of the 13 cases reported between 2001 and 2008, four (31%) resulted in death. This is consistent with the known case fatality rate for EEE (approximately 1 death/3 cases), with another 1/3 of patients suffering permanent brain damage requiring long-term medical care. Between 2001 and 2008, 62% of cases were reported in individuals residing in counties in the panhandle or northern region of the state. Thirty-two percent of cases were reported from the central region. One non-fatal case involving a child was reported from Leon County in 2008.

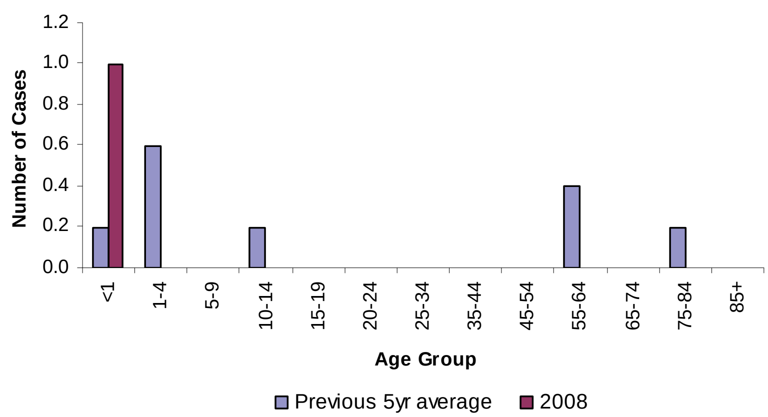
Figure 2.
Eastern Equine Encephalitis Cases by Month of Onset, Florida, 2008



Prevention

Prevention of the disease is a necessity, as there is no cure for EEE; only supportive care is available. Measures can be taken to avoid being bitten by mosquitoes. Drain any areas of standing water from around the home to eliminate mosquito breeding sites. Use insect repellents that contain DEET or other EPA-approved ingredients such as Picaridin or oil of lemon eucalyptus. Avoid spending time outdoors during dusk and dawn, the time when disease-carrying mosquitoes are most likely to be seeking a blood meal. Dress in long sleeves and long pants to protect skin from mosquitoes. In addition, inspect screens on doors and windows for holes to make sure mosquitoes cannot enter the home. Horses are also quite susceptible to this virus and vaccination is strongly recommended.

Figure 3.
Eastern Equine Encephalitis Cases by Age Group, Florida, 2008



References

David L. Heyman (ed.), *Control of Communicable Diseases Manual*, 19th ed., American Public Health Association Press, Washington, District of Columbia, 2008.

Additional Resources

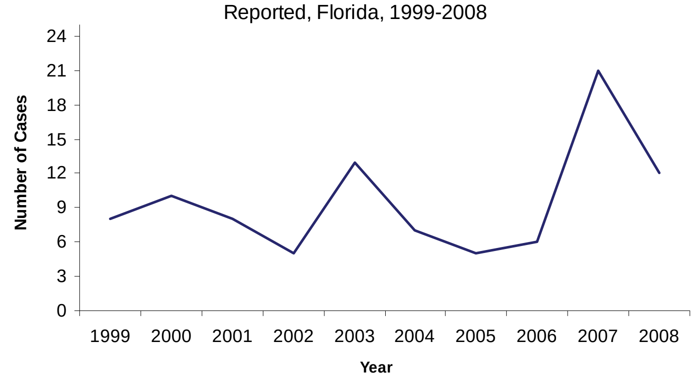
Additional information on EEE and other mosquito-borne diseases can be found in the Surveillance and Control of Arthropod-borne Diseases in Florida Guidebook, online at http://www.doh.state.fl.us/environment/medicine/arboviral/pdf_files/2009MosquitoGuide.pdf.

Disease information is also available from the Centers for Disease Control and Prevention (CDC) website http://www.cdc.gov/ncidod/dvbid/arbor/eeefact.htm.

Ehrlichiosis/Anaplasmosis

Ehrlichiosis (all codes): Crude Data	
Number of Cases	12
2008 incidence rate per 100,000	0.06
% change from average 5-year (2003-2007) reported cases	15.38
Age (yrs)	
Mean	51.92
Median	58.5
Min-Max	4 - 89

Figure 1.
Ehrlichiosis/Anaplasmosis (combined) Cases by Year Reported, Florida, 1999-2008

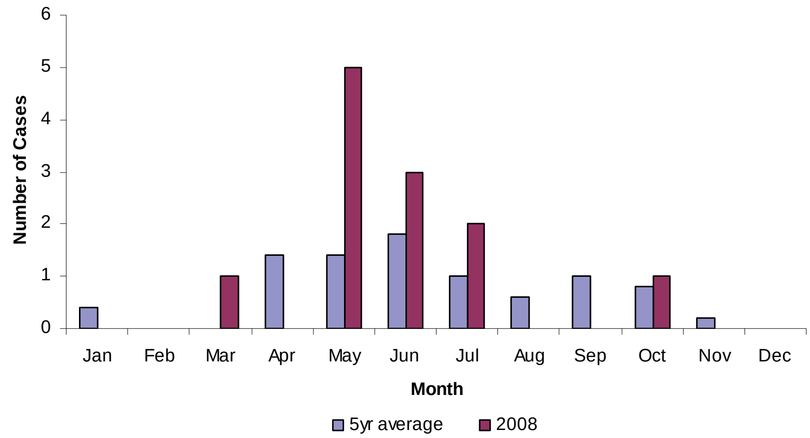


Disease Abstract

Ehrlichia chaffeensis, discovered in 1987, causes human monocytic ehrlichiosis (HME), which is nationally notifiable. *Ehrlichia ewingii* is indistinguishable from *E. chaffeensis* using serologic testing and is present in Florida, therefore some cases classified as HME may actually be due to *E. ewingii*. The principal vector for both agents is the Lone Star Tick, *Amblyomma americanum*. Due to testing limitations, *E. ewingii* is not as well characterized as *E. chaffeensis*; however it has most frequently been identified in immunocompromised patients. Human granulocytic ehrlichiosis (HGE) was originally thought to be caused by another species of *Ehrlichia*, but was later reclassified as *Anaplasma phagocytophilum*, with the associated illness renamed to human granulocytic anaplasmosis (HGA). The principal vector for *A. phagocytophilum* is *Ixodes scapularis*. HGA became nationally notifiable in1999.

Between 1998 and 2006 the total number of combined cases of HME and HGA reported ranged from two to thirteen cases per year, but in 2007 there were 21 cases reported (18 HME and 3 HGA). This number decreased to more typical levels in 2008 (Figure 1), with 10 cases of HME and two cases of HGA reported. Increased educational efforts and awareness may have contributed to the increase in reported cases in 2007. White-tailed deer are an important reservoir species for *E. chaffeensis*. Less is known regarding other potential wildlife reservoirs. In addition, there is no standardized tick surveillance program in Florida. These gaps in knowledge make it difficult to ascertain why case numbers might fluctuate from year to year. Since HGA was recognized as a separate reportable disease in 1999, there have been consistently more HME cases than HGA cases reported in Florida. In 2008, 58% of HME and HGA cases were men. The majority of HME cases (70%) are reported as being acquired in Florida, primarily in the north and central parts of the state. HGA is more likely to be acquired outside Florida and is more prevalent in the northeast United States. One locally-acquired case of HGA was reported from Dade County in 2008. Though cases of both HME and HGA are reported year-round, peak transmission occurs during the late spring and summer months (Figure 2). Sixty percent of reported cases in 2008 were over the age of 50. No deaths were reported in 2008.

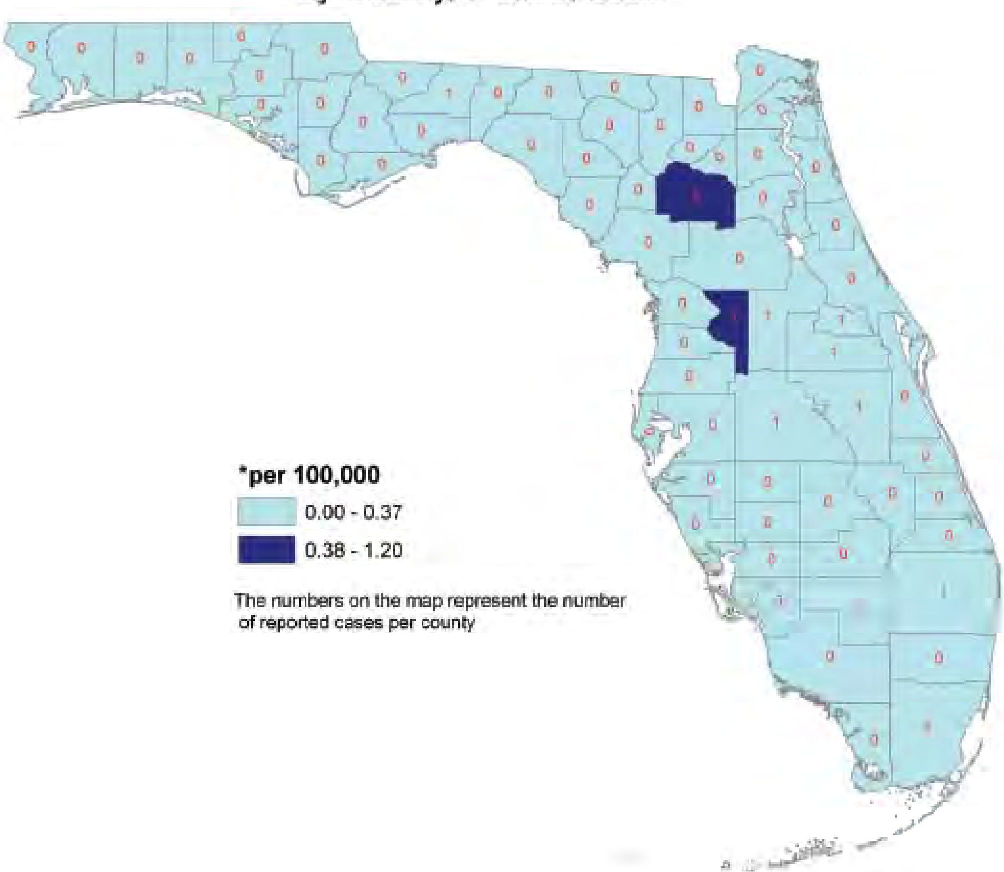
Figure 2.
Ehrlichiosis (all codes) Cases by Month of Onset, Florida, 2008



Prevention

Both HME and HGA can be treated with doxycycline, though prevention of tick bites is the best way to avoid disease. Wear light-colored clothing so that ticks crawling on clothing are visible. Tuck pants legs into socks so that ticks cannot crawl inside clothing. Apply repellent to discourage tick attachment. Repellents containing permethrin can be sprayed on boots and clothing, and will last for several days. Repellents containing DEET can be applied to the skin, but will last only a few hours before reapplication is necessary. Search the body for ticks frequently when spending time in potentially tick-infested areas. If a tick is found, it should be removed as soon as possible. Controlling tick populations in the yard and on pets can also reduce the risk of disease transmission.

Ehrlichiosis/Anaplasmosis Incidence Rate*
by County, Florida, 2008



References
David L. Heymann (ed.), *Control of Communicable Diseases Manual*, 19th ed., American Public Health Association Press, Washington, District of Columbia, 2008.

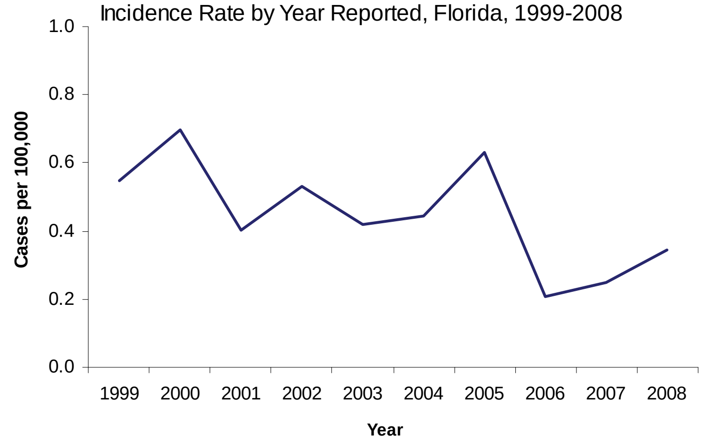
Additional Resources
Disease information is available from the Centers for Disease Control and Prevention (CDC) http:// www.cdc.gov/ncidod/dvrd/ehrlichia/Index.htm.

Disease information is also available from the Florida Department of Health at http://www.doh.state.fl.us/Environment/medicine/arboviral/Tick_Borne_Diseases/Tick_Index.htm

Escherichia coli, Shiga Toxin Producing

***Escherichia coli,* Shiga Toxin Producing**	
Number of Cases	65
2008 incidence rate per 100,000	0.34
% change from average 5-year (2003-2007) incidence rate	-11.33
Age (yrs)	
Mean	19.42
Median	14
Min-Max	<1 - 85

Figure 1.
Escherichia coli, Shiga Toxin Producing
Incidence Rate by Year Reported, Florida, 1999-2008

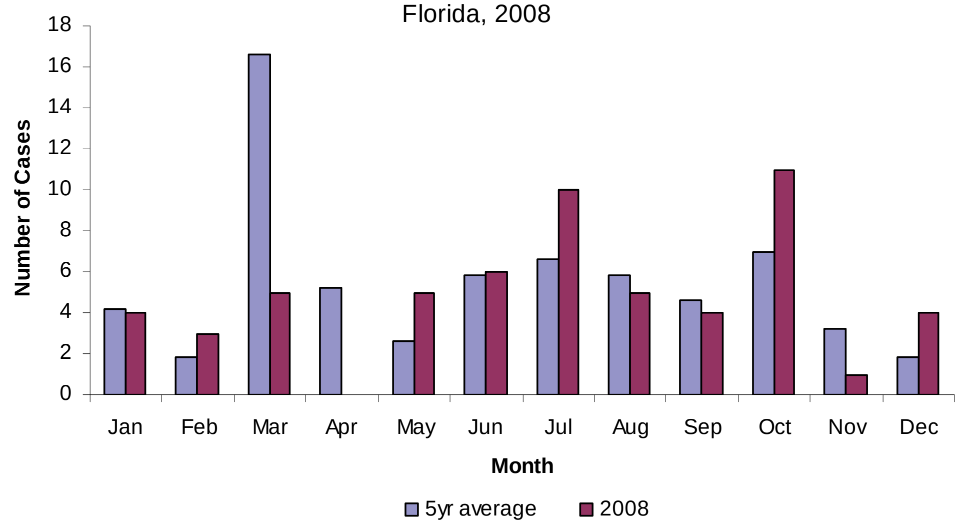


Description
The most commonly identified Shiga toxin producing *Escherichia coli* (STEC) in the U.S. is *E. coli* serogroup O157:H7; however, there are many other serogroups that cause disease due to Shiga toxin. Serogroups O26, O111, and O103 are the non-O157 serogroups that most often cause illness in people in the U.S. As a whole, the non-O157 serogroups are less likely than *E. coli* O157:H7 to cause severe illness; however, some non-O157 STEC serogroups can cause the most severe manifestations of STEC illness.

Prior to 2008, STEC was reported under multiple disease codes, depending on the serogroup. One reporting code captured only serogroup O157:H7. Another reporting code captured known serogroups other than O157:H7. Previous Florida Morbidity Statistics Reports included only the disease code for *E. coli* O157:H7. However, in 2008, these reporting codes were combined into one and *E. coli* O157:H7 is no longer separated from the non-O157 strains.

The figures in this report reflect all STEC serogroups reported over the past 10 years, not just serogroup O157:H7, and therefore cannot be compared to previous years' reports.

Figure 2.
Escherichia coli, Shiga Toxin Producing, Cases by Month of Onset, Florida, 2008

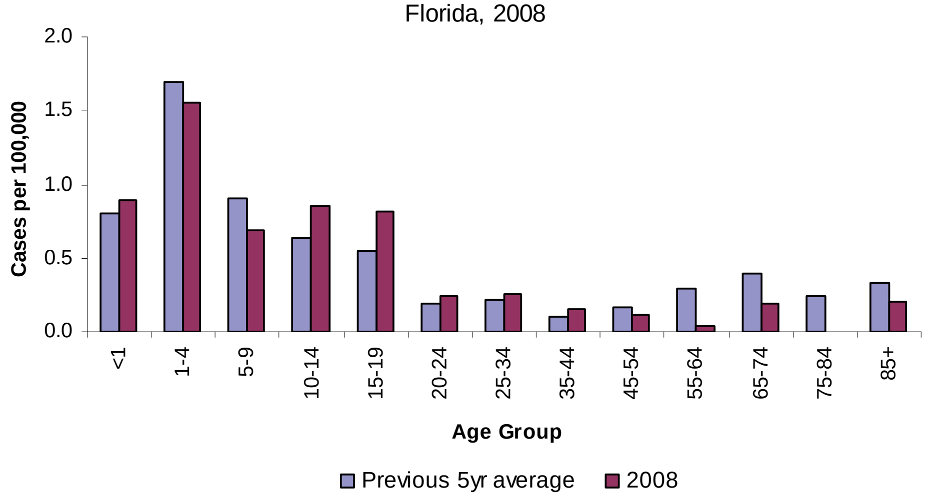


Disease Abstract

A total of 65 cases were reported in 2008, of which 59 were confirmed. Eleven were classified as outbreak-associated. Four cases were acquired in states other than Florida and three were acquired outside the U.S. Most of the confirmed cases were caused by serogroup O157:H7 (49) and a few were caused by O157:non-motile (2). Non-O157 serogroups included O103:H2 (3), O111:H8 (1), O26:H11 (1), O73:H18 (1), O45:unknown H (1) and O rough:H18 (1).

The incidence rate for STEC has varied over the last ten years (Figure 1). One source of variation is large outbreaks involving food products distributed across multiple states or other common source exposures. In 2008, there was an 11% decrease in incidence of new cases in comparison to the average incidence from 2003 to 2007, likely due to the absence of large outbreaks tied to a common source. However, the 65 cases in 2008 represent a substantial increase over the 47 cases reported in 2007.

Figure 3.
Escherichia coli, Shiga Toxin Producing, Incidence Rate by Age Group, Florida, 2008



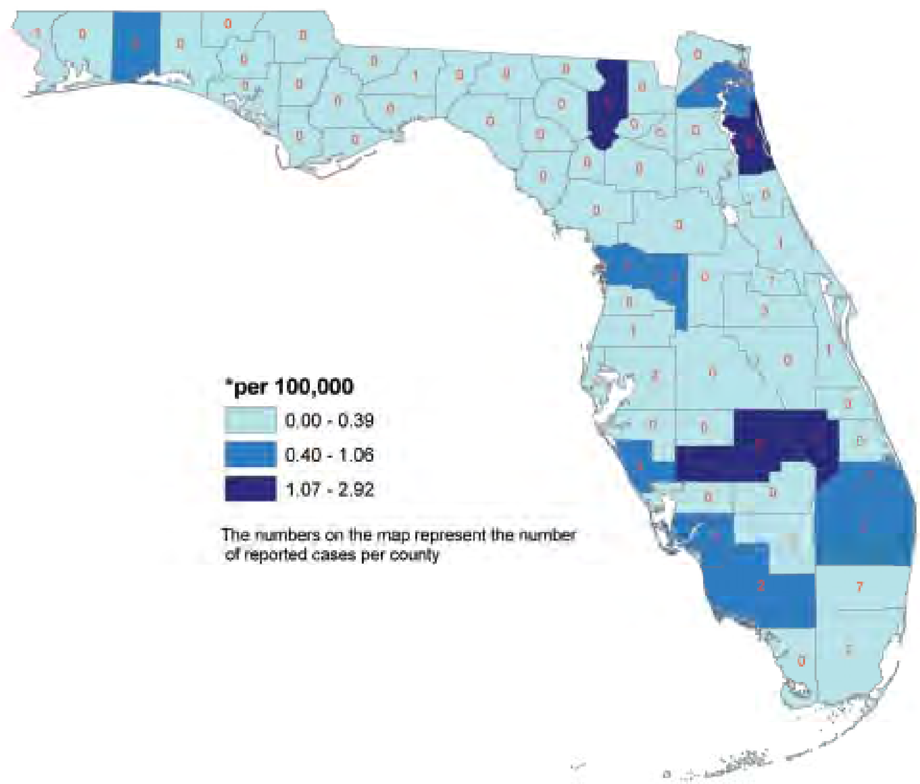
In 2008, no clear seasonal patterns were observed (Figure 2). Incidence was greatest among children and teenagers (Figure 3). Incidence was lower than the previous 5-year average in those aged 45 and older, but higher in those aged 10-19 and less than one (Figure 3).

STEC cases were reported in 25 of the 67 counties in Florida.

Prevention

To reduce the likelihood of becoming infected with STEC, all meat products should be cooked thoroughly, particularly ground beef. Cross-contamination may be avoided by making sure utensils, counter tops, cutting boards, and sponges are cleaned, or do not come in contact with raw meat. Hands should be thoroughly washed before, during, and after food preparation and after toilet use. The fluids from raw meat should not be allowed to come in contact with other foods. Additionally, it is important to wash hands after coming into contact with any animals or their environment. Particular care should be taken with young children in the settings of petting zoos or when they come in contact with farm animals which harbor the organism.

Escherichia coli, Shiga Toxin Producing, Incidence Rate*
by County, Florida, 2008



References

David L. Heymann (ed.), *Control of Communicable Diseases Manual*, 18th ed., American Public Health Association Press, Washington, District of Columbia, 2004.

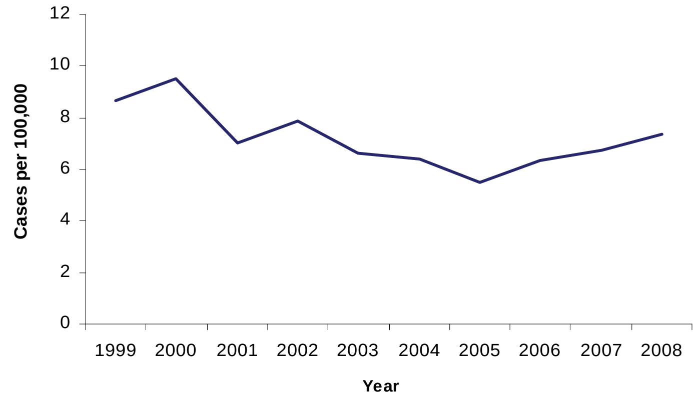
Additional Resources

Disease information is available from the Centers for Disease Control and Prevention (CDC) at http://www.cdc.gov/nczved/dfbmd/disease_listing/stec_gi.html

Giardiasis

Giardiasis: Crude Data	
Number of Cases	1,391
2008 incidence rate per 100,000	7.36
% change from average 5 year (2003-2007) reported cases	16.64
Age (yrs)	
Mean	27.56
Median	24
Min-Max	<1 - 93

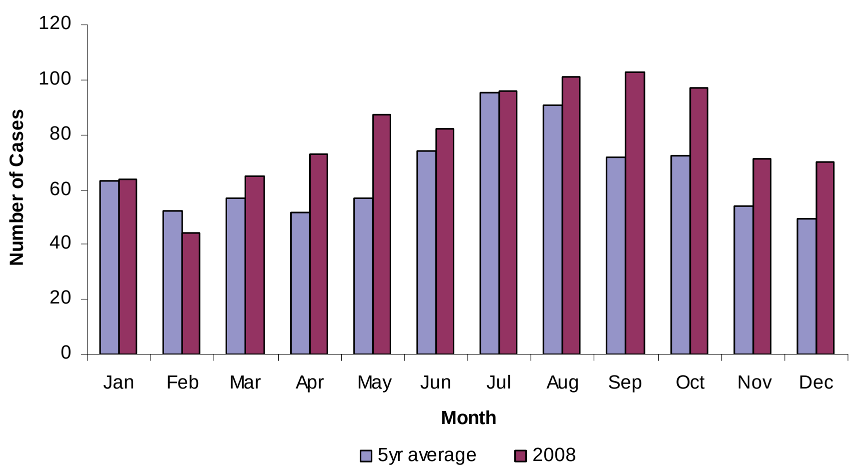
Figure 1.
Giardiasis Incidence Rate by Year Reported, Florida, 1999-2008



Disease Abstract

The incidence rate for giardiasis has declined by about half over the nine years from 1999-2008 but increased slightly starting in 2006 (Figure 1). In 2008, there was a 16.64% increase in comparison to the 5-year average incidence from 2003 to 2007. A total of 1,391 cases were reported in 2008, slightly higher than the number reported in 2007 (1,268 cases). Of the 1,391 cases reported in 2008, 98% were classified as confirmed. The number of cases increases in the summer and early fall months (Figure 2). The month of July historically has the largest number of reported cases (2003-2007: 5-year average 95.2 cases per 100,000), but in 2008, the largest number of cases occurred in September (103 cases) and July had the fourth highest case count. In 2008, all months of except for January and February exceeded the previous 5-year average number of cases. Among the 1,391 giardiasis cases reported in 2008, 82, or 5.89%, were reported as outbreak associated. Over 70% of all reported cases indicated infection had been acquired in Florida. There were 290 cases that were reported as acquired outside of the U.S. with 155 of these cases, or 53.8%, indicating infection was acquired in Cuba.

Figure 2.
Giardiasis Cases by Month of Onset, Florida, 2008



The highest reported incidence rates continue to occur among in children aged 1-4 years (35.63 cases per 100,000) and 5-9 years (15.96 cases per 100,000) (Figure 3). There were a total of 313 cases reported among children aged 1-4 years. Approximately forty percent of the 313 cases aged 1-4 years attended daycare.

Figure 3.
Giardiasis Incidence Rate by Age Group, Florida, 2008

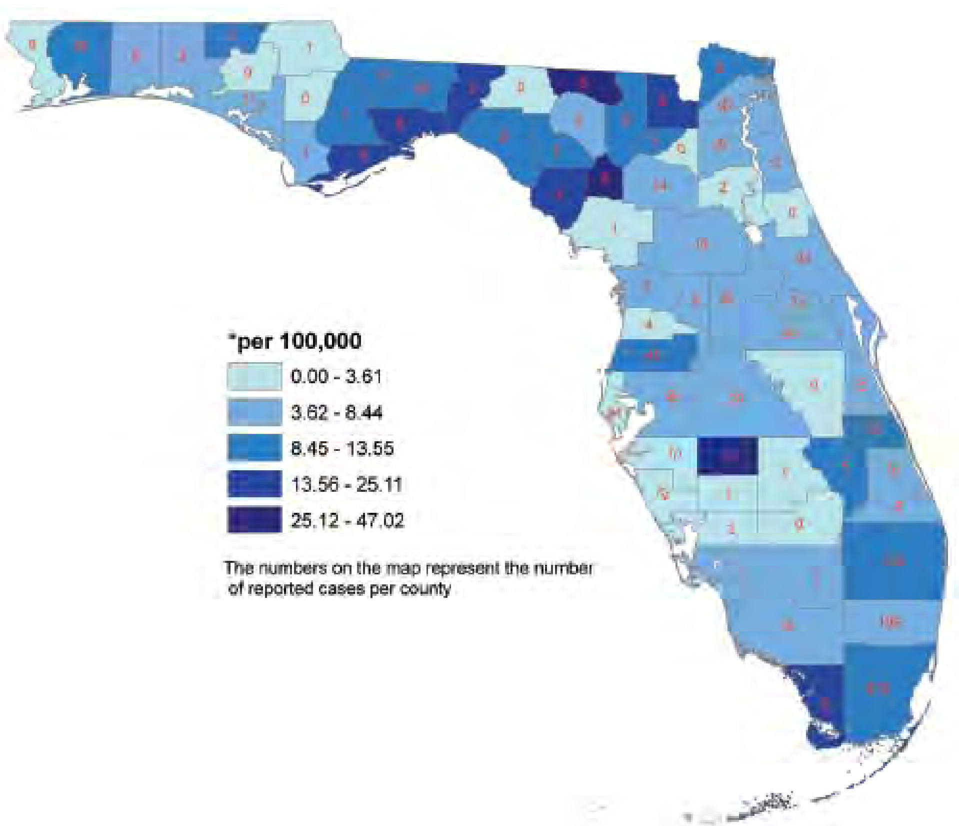
Overall, males continue to have a higher reported incidence than females (8.58 and 6.18 per 100,000, respectively). Following previous annual trends, incidence rates in whites are greater than those in non-whites.

In 2008, giardiasis was reported in 61 of the 67 counties in Florida.

Prevention

Most *Giaridia* infections can be avoided or reduced by practicing good hand hygiene. This is particularly important in child care centers and after toilet use, before handling food, and before eating. Avoid food and swallowing water that might be contaminated such as recreational water (ponds, lakes, etc.) and drinking untreated water from shallow wells, lakes, rivers, springs, ponds, streams, or untreated ice. Avoid drinking tap water when traveling in countries where the water may not be adequately filtered and treated. Boiling water is the most reliable way to make water safe for drinking. Filters and chemical disinfection can be effective against *Giardia*, but the effectiveness of chlorine is dependent on several factors, including: pH, temperature, and organic content of the water. People with diarrhea caused by *Giardia* should avoid use of recreational water venues for two weeks after symptoms resolve.

Giardiasis Incidence Rate* by County, Florida, 2008



References

David L. Heymann (ed.), *Control of Communicable Diseases Manual*, 18th ed., American Public Health Association Press, Washington, District of Columbia, 2004.

L.K. Pickering, C.J. Baker, S.S. Long, and J.A. McMillan (eds.), *Red Book: 2006 Report of the Committee on Infectious Diseases*, 27th ed., American Academy of Pediatrics Press, 2006.

Additional Resources

Disease information is available from the Centers for Disease Control and Prevention (CDC) at http://www.cdc.gov/ncidod/dpd/parasites/giardiasis/default.htm.

Gonorrhea

Disease Abstract

In 2008, there were 23,237 gonorrhea cases reported among both males and females in Florida, or a rate of 122.9 cases per 100,000 population. Overall cases decreased by 8.2% from 2007. Over 48% of all gonorrhea cases are reported from the larger, more populous counties (Duval, Broward, Dade, Hillsborough, Orange) and although certain counties bear a larger proportion of disease, smaller counties absorb higher rates (Table 1).

Figure 1. Reported Cases of Gonorrhea by Year, Florida, 2004-2008

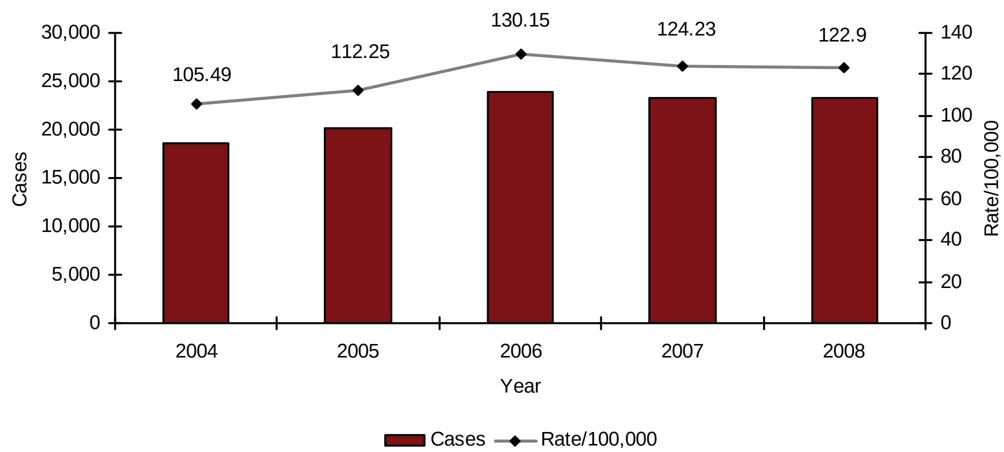
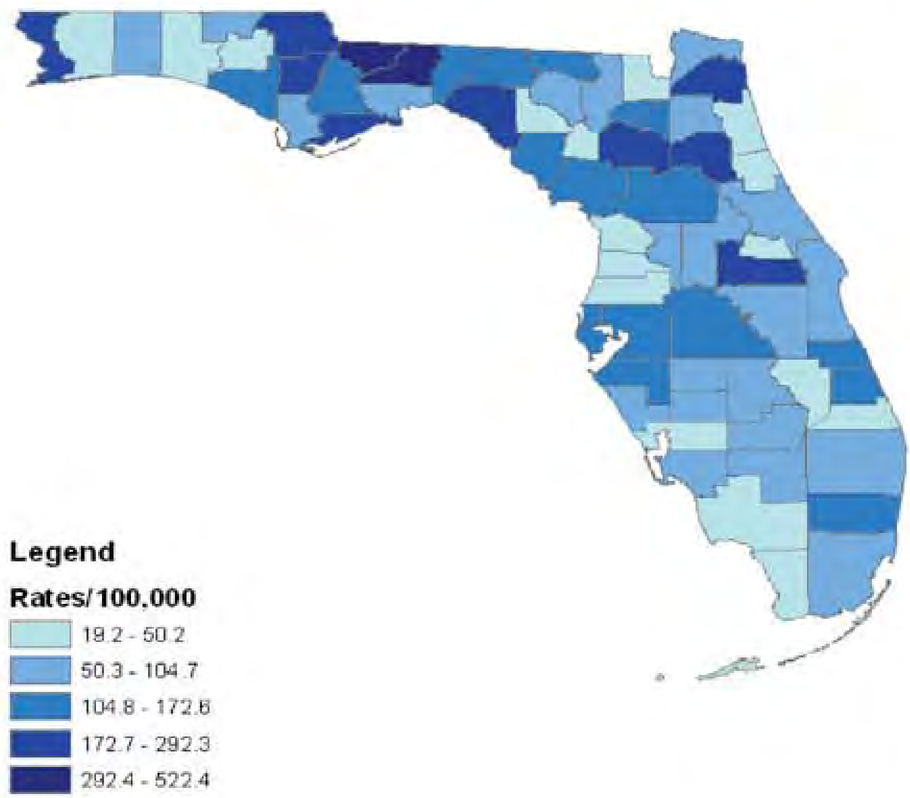


Table 1. Counties with the Highest Rate/100,000 of Gonorrhea, Florida, 2008				
County	**Rank**	**Population**	**Cases**	**Rate per 100,000**
Gadsden	1	50,152	262	522.4
Leon	2	273,741	1,050	383.6
Duval	3	908,378	2,655	292.3
Calhoun	4	14,688	40	272.3
Putnam	5	74,903	182	243.0

In the urban environment of the U.S. disease incidence can be 20 to 30 times that of surrounding areas. However, in Florida rates of infection are highest in the panhandle and the northern portion of the state which are some of the least populated and most rural portions of the state (Figure 2).

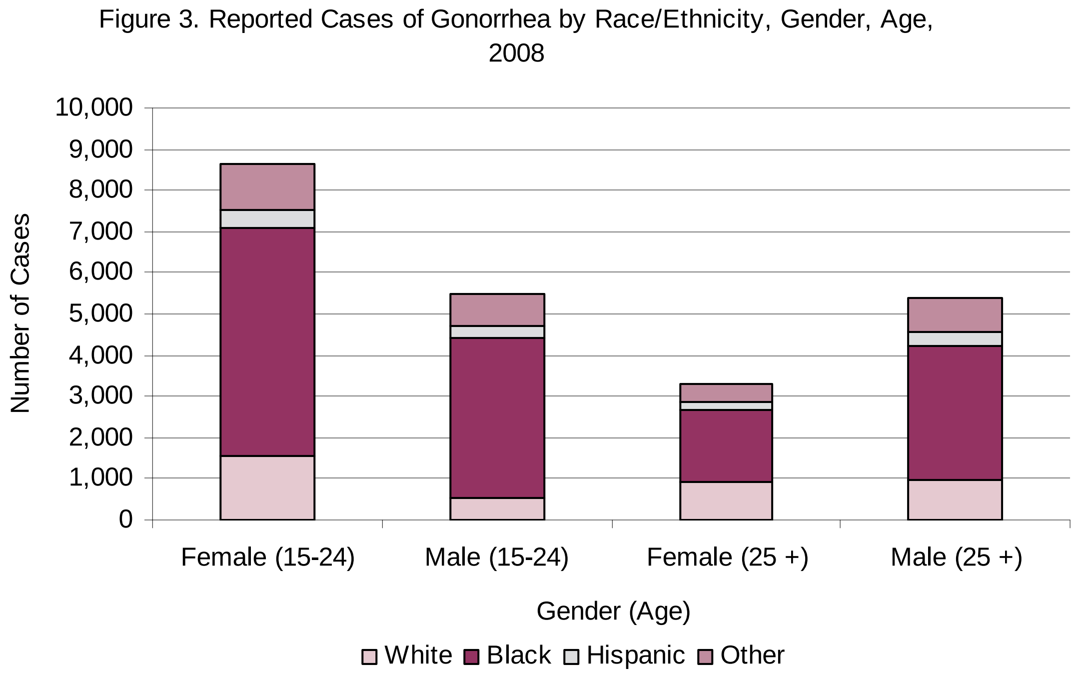
Much like chlamydia trends, gonorrhea cases disproportionately affect those under the age of 25. Close examination of the disease distribution reveals that over 75% of all reported cases of gonorrhea are reported in populations under the age of 30; further, gonorrhea is the second most prevalent sexually transmitted bacterial infection reported among 15 to 24-year-olds in Florida. More cases have been reported in the 20-24 age group for gonorrhea consistently since 1998; further, 15- to 24-year-olds accounted for 61% of infections reported in 2008. The age specific case rate for 15- to 24-year-olds was 581.6 per 100,000 population. The mean age of all reported gonorrhea cases was 24.9 years. However, when data is examined by age in single years for those 15-24, rather than as an age group, reported cases peaked at the age of 19 with a gradual decline in number of cases as age in years increased.

Figure 2. Gonorrhea Rates/100,000, 2008



When comparing gender-specific data in populations under 25, females under the age of 25 accounted for the largest proportion of cases reported (52.6%) (Figure 3). Among females, the highest number of cases was reported in 15- to 19-year-olds (4,546 cases) with a rate of 761.8 per 100,000 population. The second highest rate among females was in 20- to 24-year-olds (690.8 per 100,000 population). Among males, the highest numbers of cases was reported in the 20-24 age group (3,370 cases) with a rate of 539.9 cases per 100,000 population. Men 25-29 had the second highest rate (348.9 per 100,000 population). Unlike chlamydia trends, men aged 25 and over had higher rates compared to women of the same age group. Nevertheless, all cases reported, regardless of gender, occur disproportionately in populations under 25 years of age. One explanation for the higher rates of gonorrhea among men as compared to chlamydia is that a majority of urethral infections with *N. gonorrheae* cause symptoms that prompt the patient to seek care. This could lead to greater detection of gonorrhea cases among men, not necessarily reflect higher incidence of infection.

In 2008, the distribution of gonorrhea by race/ethnicity disproportionately affected non-Hispanic blacks (Figure 3). Non-Hispanic black adolescents and young adults (15-24) had the highest rates by race/ethnicity and age group in Florida. In 2008, non-Hispanic blacks age 15-24 had a case rate of 1,833.1 per 100,000 population. This rate was 11 times higher than the second highest rate in non-Hispanic whites 15-24 (163.2 per 100,000 population).



Prevention

STD infections in women can lead to complications such as pelvic inflammatory disease (PID). Both symptomatic and asymptomatic cases of PID can result in tubal scarring that can lead to infertility or ectopic pregnancy. Because gonococcal infections among women are frequently asymptomatic, an essential component of gonorrhea control in the U.S. is screening of women at high risk for STDs. The U.S. Preventive Services Task Force (USPSTF) recommends screening all sexually active women, including those who are pregnant, for gonorrhea infection if they are at increased risk. Risk factors include age <25 years, a previous gonorrhea infection, other sexually transmitted infections, new or multiple sex partners, inconsistent condom use, commercial sex work, and drug use. The USPSTF does not recommend screening for men or women who are at low risk for infection.

Patients infected with *N. gonorrhoeae* are frequently co-infected with *C. trachomatis* which has led to the recommendation that patients treated for gonococcal infection also be treated routinely with a regimen that is effective against Chlamydia. Because the majority of gonococci in the United States are susceptible to doxycycline and azithromycin (used to treat chlamydia), routine co-treatment might also hinder the development of antimicrobial-resistant *N. gonorrhoeae*. Due to the prevalence of antimicrobial-resistant *N. gonorrhoeae* in the U.S. and globally, the treatment recommendations for patients are specific to the site of the infection, the geographical area of exposure, patient health status, and other factors. The most current treatment guidelines can be accessed from the CDC at http://www.cdc.gov/std/treatment/default.htm.

Gonorrhea cases continue to decrease overall. However, some of the core risk factors for infection correlate to socioeconomic indicators that are often unrecognized in data reporting. Gonorrhea continues to disproportionately impact minority populations and is increasing among MSM (men who have sex with men) populations. This data suggests the need for specialized interventions and resources for these populations. Additionally, the sustained number of cases in youth and young adult populations indicates that these populations are participating in behaviors that put them at risk for STDs in general, including HIV. To further understand the contributory causes and risk factors for acquisition of disease, accurate, timely, and comprehensive reporting and disease investigation must continue. Additionally, clusters of infection must be understood.

References

Centers for Disease Control and Prevention. “Gonorrhea- CDC Fact Sheet.” Atlanta, GA: U.S. Department of Health and Human Services, April 2006.

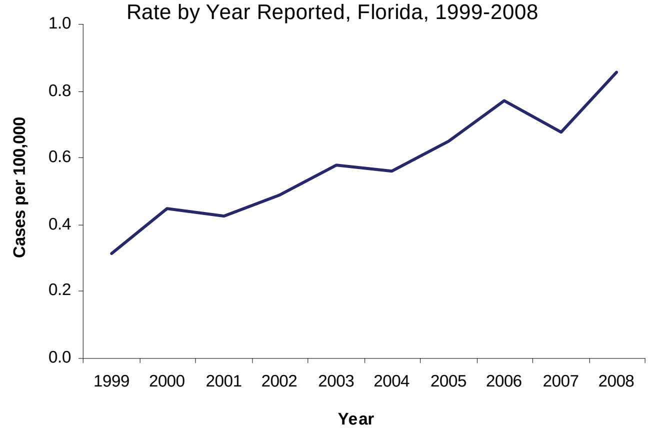
Nelson KE, Williams CM, Graham NMH (Eds.). *Infectious Disease Epidemiology: Theory and Practice*. Gaithersburg, Md, Aspen Publishers, 2001.

Centers for Disease Control and Prevention. “Sexually Transmitted Diseases Treatment Guidelines, 2006.” *MMWR*, 2006, Vol. 55, No. RR-11, pp. 42-49.

Haemophilus influenzae **(Invasive Disease)**

Haemophilus influenzae **(Invasive Disease): Crude Data**	
Number of Cases	162
2008 incidence rate per 100,000	0.86
% change from average 5-year (2003-2007) incidence rate	31.62
Age (yrs)	
Mean	54.06
Median	62
Min-Max	<1 - 100

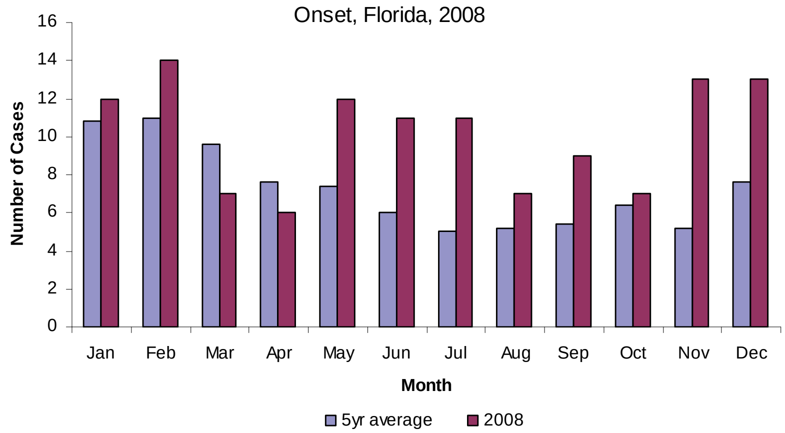
Figure 1.
Haemophilus influenzae, Invasive Disease, Incidence Rate by Year Reported, Florida, 1999-2008



Disease Abstract

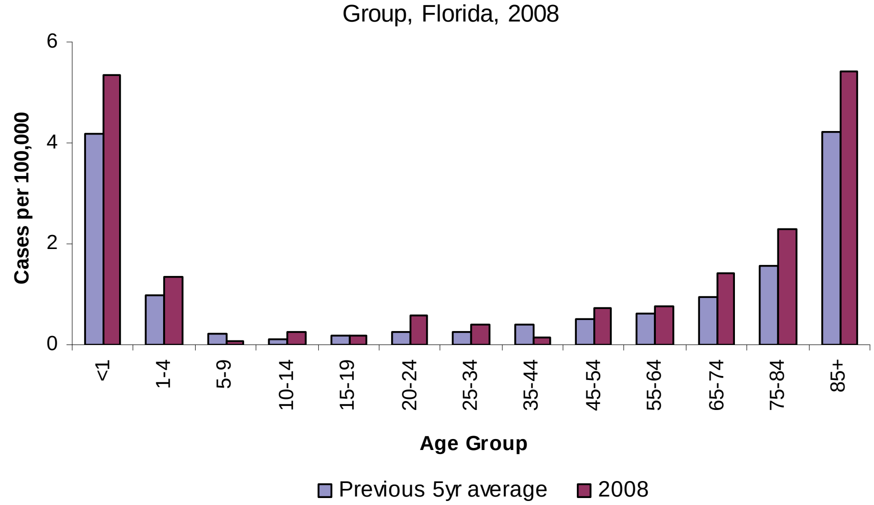
The incidence rate for all invasive diseases caused by *Haemophilus influenzae* has gradually increased over the past ten years (Figure 1). In 2008, there was a 31.62% increase compared to the average incidence from 2003 to 2007. A total of 162 cases were reported in 2008, all of which were classified as confirmed. The number of cases reported is highest in the winter, during the months of December through February (Figure 2). In 2008, the number of cases significantly exceeded the previous 5-year average in most months of the year. Nearly all cases of invasive disease caused by *Haemophilus influenzae* are sporadic in nature.

Figure 2.
Haemophilus influenzae, Invasive Disease, Cases by Month of Onset, Florida, 2008



The highest reported incidence rates occur in those aged <1 year or in those >85 years (Figure 3). In 2008, the incidence rates were higher than the previous 5-year average in all age groups except those 5-9, 15-19, and 35-44 years. The incidence of disease in males and females does not differ significantly (0.76 per 100,000 and 0.95 per 100,000 respectively). As in the past, incidence rates in non-whites are greater than those in whites with the highest incidence being in non-white males (1.24 per 100,000).

Figure 3.
Haemophilus influenzae, Invasive Disease, Incidence Rate by Age Group, Florida, 2008

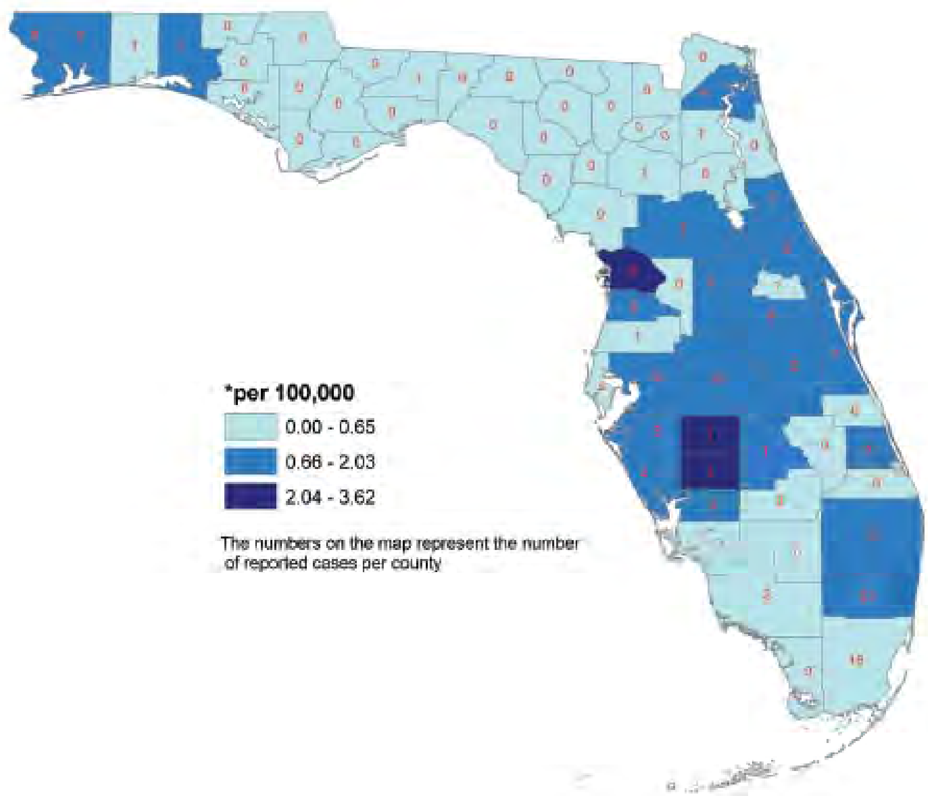


Invasive disease caused by *Haemophilus influenzae* was reported in half (33) of the 67 counties in Florida. Overall, counties in central and southwestern Florida reported the highest incidence rates.

Invasive disease caused by *Haemophilus influenzae* b in those under age five:
In 2008, there was one case of invasive disease (meningitis) caused by *Haemophilus influenzae* serotype b in a child under age 5 that resulted in death.

Prevention
A conjugate vaccine series against Haemophilus influenzae type B (Hib) is recommended by the Advisory Committee on Immunization Practices for infants and children, birth to five years of age. A full series is four doses, but the recommended number of doses varies by age and immunization history. As of January 2009, the age-appropriate number of doses, or valid exemption, is required for entry and attendance at childcare facilities. Additional information may be found at http://www.cdc.gov/mmwr/preview/mmwrhtml/rr4805a1.htm and http://www.cdc.gov/vaccines/ recs/schedules/downloads/child/2007/child-schedule-color-print.pdf

Haemophilus influenzae Invasive Disease Incidence Rate* by County, Florida, 2008



References

David L. Heyman (Ed.), *Control of Communicable Diseases Manual*, 18th ed., American Public Health Association Press, Washington, District of Columbia, 2004, p. 366.

Additional Resources

Additional information is available from the Centers for Disease Control and Prevention (CDC) at http://www.cdc.gov/ncidod/dbmd/diseaseinfo/haeminfluserob_t.htm and http://www.cdc.gov/mmwr/preview/mmwrhtml/rr4805a1.htm

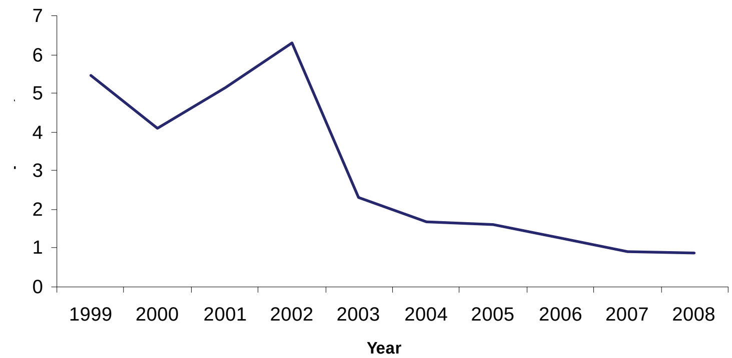
Immunization Recommendations are available from:

Centers for Disease Control and Prevention, "*Haemophilus* b Conjugate Vaccines for Prevention of *Haemophilus influenzae* Type b Disease Among Infants and Children Two Months of Age and Older. Recommendations of the ACIP," *Morbidity and Mortality Weekly Report*, Vol. 40, (RR01); pp.1-7. http://www.cdc.gov/mmwr/preview/mmwrhtml/00041736.htm.

Hepatitis A

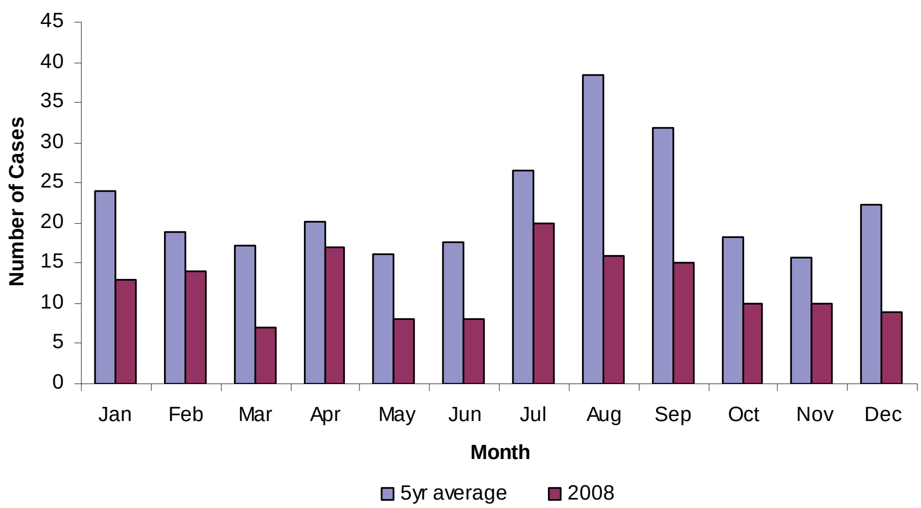
Hepatitis A: Crude Data	
Number of Cases	165
2008 incidence rate per 100,000	0.87
% change from average 5-year (2003-2007) incidence rate	-43.36
Age (yrs)	
Mean	40.82
Median	41
Min-Max	1 - 88

Figure 1.
Hepatitis A Incidence Rate by Year Reported, Florida, 1999-2008



Disease Abstract
A total of 165 cases of hepatitis A were reported in 2008, of which 88.48% were classified as confirmed. Approximately 38.8% of hepatitis A cases were hospitalized. Approximately 11% of cases were classified as outbreak-related and only 15% reported contact with a person with confirmed or suspected hepatitis A infection in the 2-6 weeks prior to their illness. Approximately 35% of cases reported a travel history outside the U.S. and Canada in the 2-6 weeks prior to their illness; additionally, 23% of cases reported that someone in their household had traveled outside of the U.S. or Canada. Four cases were associated with daycare centers and two cases were reported in food-handlers. The incidence rate for hepatitis A in Florida has declined markedly since 2002, which mirrors a similar decline observed nationally (Figure 1). The annual incidence in Florida from 2004 to 2008 was around 1-2 cases per 100,000. This is a substantial decrease from the annual incidence of 4-6 cases per 100,000 observed between 1998 and 2002. The decrease in Florida, and nationally, is likely due to increased use of vaccines to protect against hepatitis A virus, which first became commercially available in 1995.

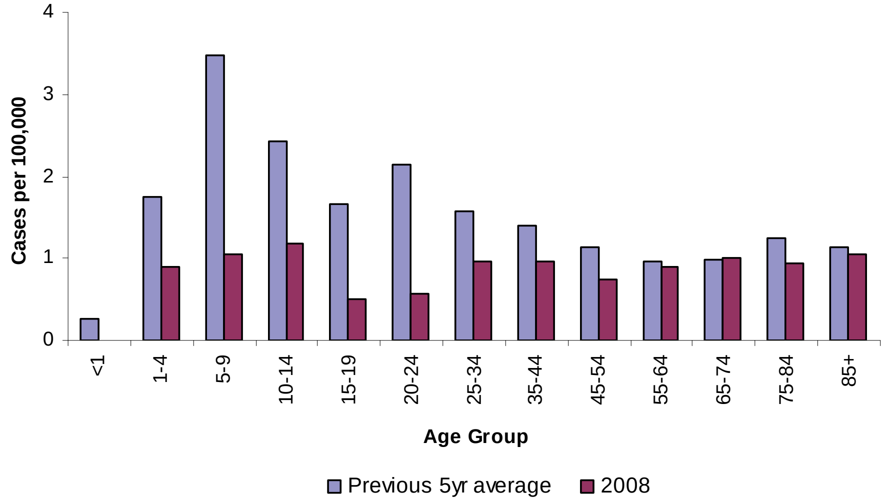
Figure 2.
Hepatitis A Cases by Month of Onset, Florida, 2008



Hepatitis A occurs throughout the year (Figure 2). In 2008, incidence rates were lower than the previous 5-year average in all age groups (Figure 3). The largest decrease in incidence was observed among children 5 to 9 years old and adults 20 to 24 years old. The incidence in 2008 was lowest among non-white females (0.21 per 100,000) and highest among white males (0.96 per 100,000).

During 2008, hepatitis A was reported in 31 of the 67 counties in Florida.

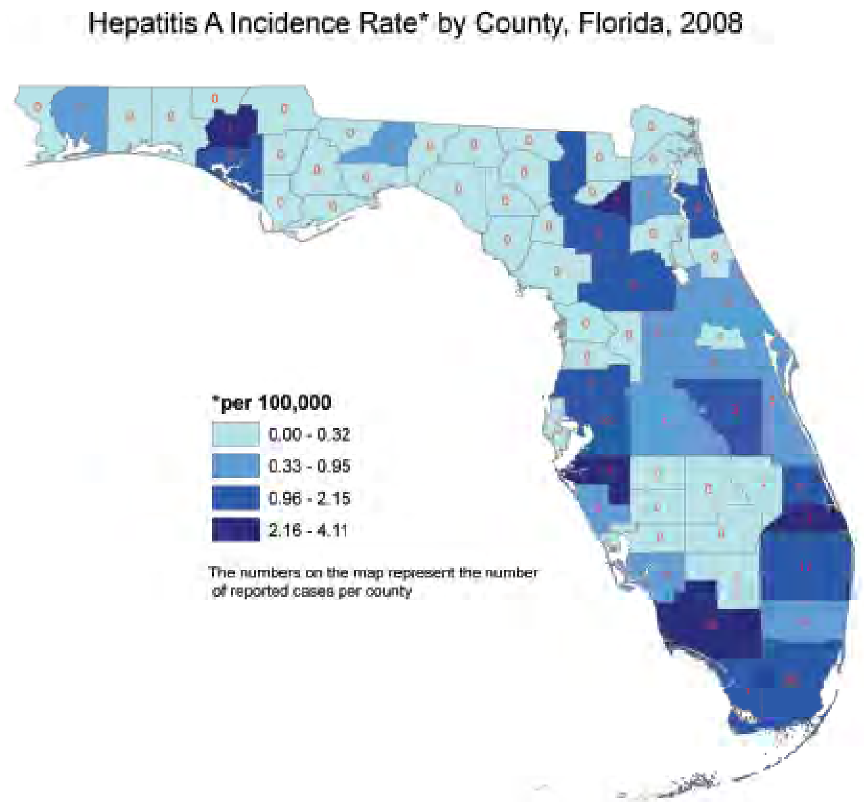
Figure 3.
Hepatitis A Incidence Rate by Age Group, Florida, 2008



Prevention

Currently, the single antigen, two-dose hepatitis A vaccine is recommended as part of the routine immunization schedule for all children, starting at age one. However, this is not a requirement for childcare or school entry in Florida. The doses should be spaced at least six months apart. A combined hepatitis A and hepatitis B vaccine is available for adults >18 years old, and is administered in three doses. In addition to routine childhood immunization, hepatitis A vaccine is also recommended for those at increased risk of infection, including those traveling to developing countries, men who have sex with men (MSM), injection and non-injection drug users, and persons with a clotting factor disorder.

Other efforts to prevent hepatitis A infection should focus on disrupting transmission through good personal hygiene, hand washing, and washing fruits and vegetables before eating. Illness among food-handlers or persons in a childcare setting should be promptly identified and reported to prevent further spread of the disease in those settings. In outbreak settings, immune-globulin may be administered to at-risk contacts of infected individuals, particularly children <1 year and adults over age 40. Recently updated guidelines based on results from a clinical trial, recommend vaccine for post-exposure prophylaxis in healthy individuals between 1 and 40 years old. All post-exposure prophylaxis should be administered within two weeks of exposure.



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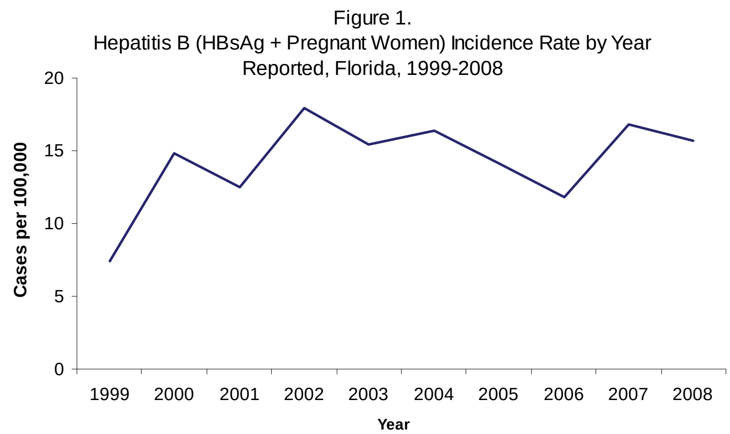
Centers for Disease Control and Prevention, "Summary of Notifiable Diseases-United States, 2006," *MMWR* 2006; 55(53).

Additional Resources

Disease information is available from the Centers for Disease Control and Prevention (CDC) at http://www.cdc.gov/NCIDOD/diseases/hepatitis/a/index.htm.

Hepatitis B (HBsAg + Pregnant Women)

Hepatitis B (HBsAg + Pregnant Women): Crude Data	
Number of Cases	599
2008 incidence rate per 100,000	15.69
% change from average 5-year (2003-2007) incidence rate	5.32
Age (yrs)	
Mean	28.64
Median	29
Min-Max	14 - 51



Disease Abstract

There were 599 pregnant women that tested positive for the hepatitis B surface antigen (HBsAg+) in 2008, which is a decrease from 644 women in 2007. In 2008, one Florida-born infant was identified as a perinatal case of hepatitis B (disease code 07744) and was identified by post-vaccination blood testing. This is a decrease from the two infants identified as perinatal hepatitis B cases in 2007.

Prevention

Hepatitis B immune globulin (HBIG) is prepared from human plasma known to contain a high titer of antibody to HBsAg (anti-HBs). A regimen combining HBIG and hepatitis B vaccine is 85%-95% effective in preventing HBV infection when administered at birth to infants born to HBsAg+ mothers. HBIG and the first dose of hepatitis B vaccine should be administered within 12 hours of birth. The second dose should be given at one month of age and the third dose at six months of age. Dose three of hepatitis B vaccine should not be given before six months of age. These infants should have serologic testing at 9-15 months of age to determine if a protective antibody response developed after vaccination. Infants who do not respond to the primary vaccination series should be given three additional doses of hepatitis B vaccine in a 0, 1-2, 4-6 month schedule, and have the HBsAg and anti-HBs blood tests repeated to determine response. Vaccine for children and adults is available in combination vaccines.

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Centers for Disease Control and Prevention, “A comprehensive immunization strategy to eliminate transmission of hepatitis B virus infection in the United States: recommendations of the Advisory Committee on Immunization Practices (ACIP); Part 1: Immunization of Infants, Children, and Adolescents,” *Morbidity and Mortality Weekly Report*, Vol. 54, No. RR-16, 2005.

Centers for Disease Control and Prevention, “A Comprehensive Immunization Strategy to Eliminate Transmission of Hepatitis B Virus Infection in the United States Recommendations of the Advisory Committee on Immunization Practices (ACIP) Part II: Immunization of Adults,” *Morbidity and Mortality Weekly Report*, Vol. 55, No. RR-16, 2006.

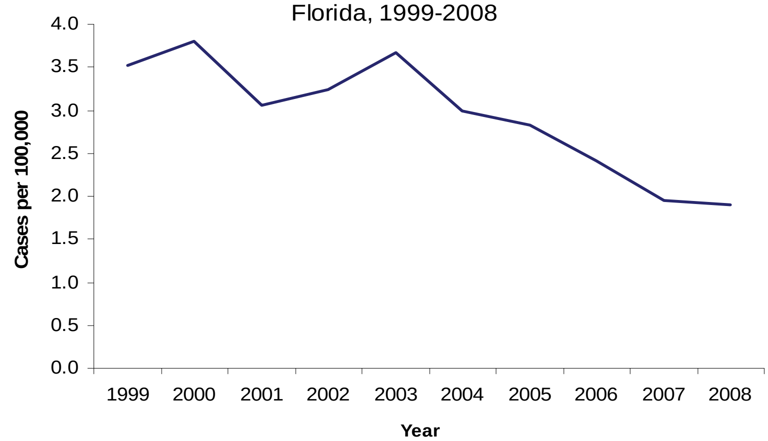
Additional Resources
Disease information is available from the Centers for Disease Control and Prevention (CDC) at http://www.cdc.gov/vaccines/vpd-vac/hepatitis/default.htm

Recommended immunization schedule is available at: http://www.cdc.gov/vaccines/recs/ schedules/ default.htm.

Hepatitis B, Acute

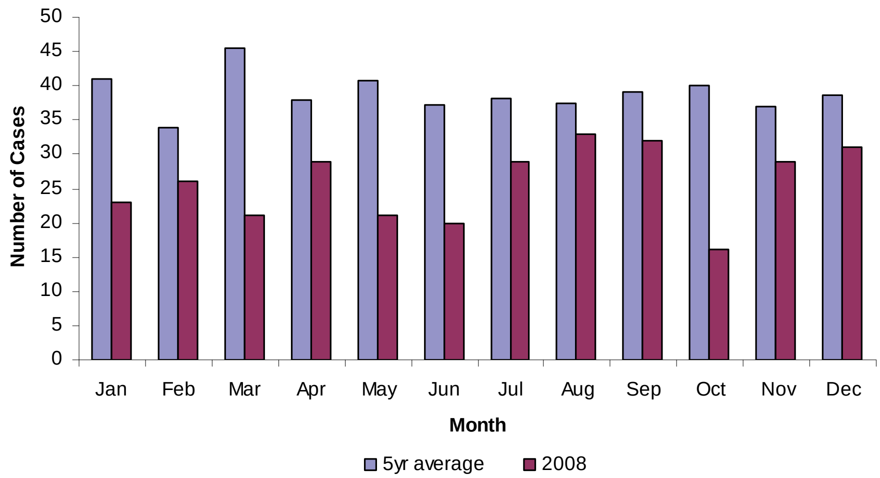
Hepatitis B, Acute: Crude Data	
Number of Cases	358
2008 incidence rate per 100,000	1.89
% change from average 5-year (2003-2007) incidence rate	-31.27
Age (yrs)	
Mean	42.34
Median	41
Min-Max	18 - 85

Figure 1.
Hepatitis B, Acute Incidence Rate by Year Reported, Florida, 1999-2008



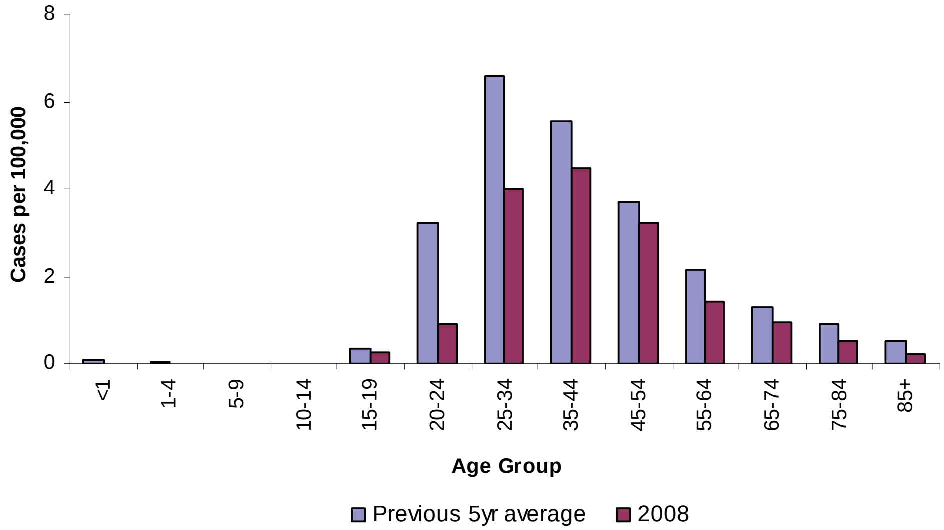
Disease Abstract
The incidence rate for acute Hepatitis B has declined gradually over the last ten years (Figure 1). The 2008 rate was 31.27% lower than the average from 2003-2007. A total of 358 cases were reported in 2008, of which 96.09% were classified as confirmed. There is no seasonal trend for acute hepatitis B infection (Figure 2). Overall, 91.89% of the acute hepatitis B cases were classified as sporadic.

Figure 2.
Hepatitis B, Acute Cases by Month of Onset, Florida, 2008



The highest historical incidence rates occurred in the 25 to 34-year-old age group, and for 2008 the incidence rate in this group was high, but the highest incidence was among those aged 35-44 which was the same for 2007. In 2008, the incidence rates were lower than the previous 5-year average in all age groups (Figure 3). The incidence of Hepatitis B is lowest in people <19 years of age. Rates have always been low in children, and are even lower with widespread immunization. Males continue to have a higher incidence than females (2.53 per 100,000 and 1.28 per 100,000, respectively).

Figure 3.
Hepatitis B, Acute Incidence Rate by Age Group, Florida, 2008



Hepatitis B is a vaccine-preventable disease. Among the 358 people diagnosed with acute hepatitis B, 68.2 % never received the vaccine and 26.26% have unknown vaccine status. This demonstrates the importance of vaccination campaigns to eliminate hepatitis B in the U.S. The symptoms of acute viral hepatic illness may prompt individuals to seek immediate medical attention. Approximately 56.7% of those diagnosed with acute hepatitis B were hospitalized. In 2008, death occurred in one of the 358 people with acute hepatitis B infection. Twenty-nine of the 368 people with acute hepatitis B reported having had contact with someone confirmed or suspected of having a hepatitis B infection, and of these, 76% reported the ill person was a sexual partner. Drug use has also been associated with hepatitis B infection. Of the 358 acute hepatitis B cases, 9.5% reported injection drug use and 19.6% reported using street drugs but not injection drug use. Hepatitis B infection has also been associated with improper sterilization or sharing of needles to create tattoos. In 2008, 9.5% of those with an acute hepatitis B infection had recently received a tattoo.

Sexual behavior may place an individual at risk for hepatitis B infection. However, individuals may often decline to comment on the frequency of sexual partners and/or their sexual preference. For 2008, sexual preference and frequency of sexual partnerships are summarized in Table 2. People’s risk factors may change over time.

Acute hepatitis B was reported in 47 of the 67 counties in Florida. A cluster of high-rate counties can be seen in the center of the state and along the northern border.

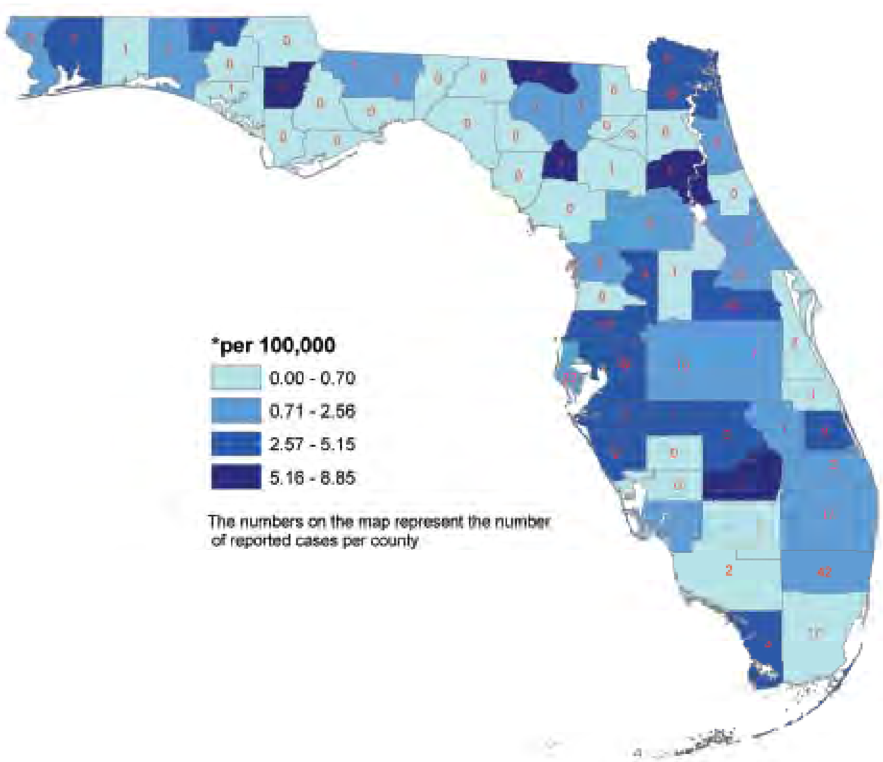
Table 2. Distribution of the Number of Sexual Partners in the Six Months Prior to Symptoms in Four Sexual Preference Groups, for People with Acute Hepatitis B Reported in 2008.

Sexual Behavior Risk Factors	Men having sex with men*	Men having sex with women*	Women having sex with men*	Women having sex with women*
1 Sexual Partner	4%	29%	42%	2%
2-5 Sexual Partners	6%	16%	19%	0%
More than 5 Sexual Partners	3%	3%	3%	0%
No Reported Sexual Partners	55%	23%	13%	74%
Not Answered	3%	1%	2%	4%
Unknown	29%	28%	21%	20%
Total	100%	100%	100%	100%
% of Cases in Each Sexual Preference Group†	12%	48%	64%	2%

* Total number of acute hepatitis B positive males is 234 and females is 123. One person identified themselves as unknown. In 2008, all 358 acute cases of hepatitis B occurred in individuals 18 years of age and older.

† Sexual history is collected by asking about the number of sexual partnerships in the last 6 months prior to having symptoms, regardless of gender.

Hepatitis B, Acute Incidence Rate* by County, Florida, 2008



Prevention

Hepatitis B vaccines are available to protect against hepatitis B virus infection. In addition, in health care settings, universal precautions should be implemented for individuals in contact with body fluids. High-risk groups for infection include drug users who share needles, healthcare workers who have contact with infected blood, MSM (men who have sex with men), people who have multiple sexual partners, household contacts of infected persons, and infants born to mothers who are hepatitis B carriers.

References

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Additional Resources

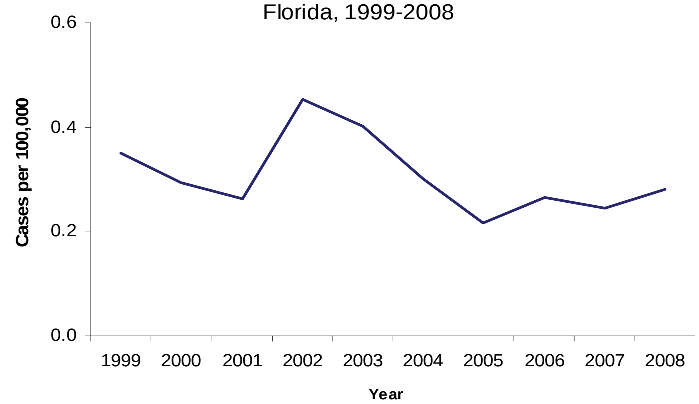
Disease information is available from the Centers for Disease Control and Prevention (CDC) website at http://www.cdc.gov/ncidod/diseases/hepatitis/b/index.htm and http://www.cdc.gov/ncidod/diseases/hepatitis/recs/index.htm

Disease information is also available from the World Health Organization (WHO) website at http://www.who.int/mediacentre/factsheets/fs204/en/

Hepatitis C, Acute

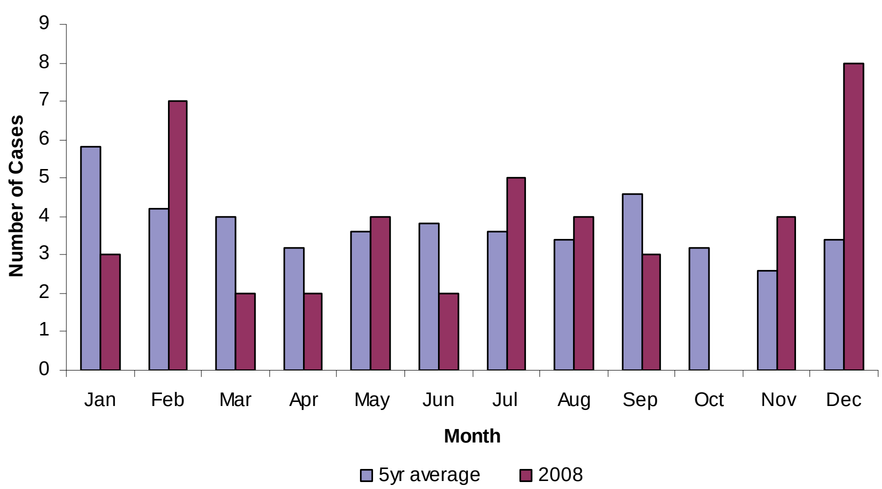
Hepatitis C, Acute: Crude Data	
Number of Cases	53
2008 incidence rate per 100,000	0.28
% change from average 5-year (2003-2007) incidence rate	-1.43
Age (yrs)	
Mean	39.13
Median	41
Min-Max	14 - 72

Figure 1.
Hepatitis C, Acute Incidence Rate by Year Reported, Florida, 1999-2008



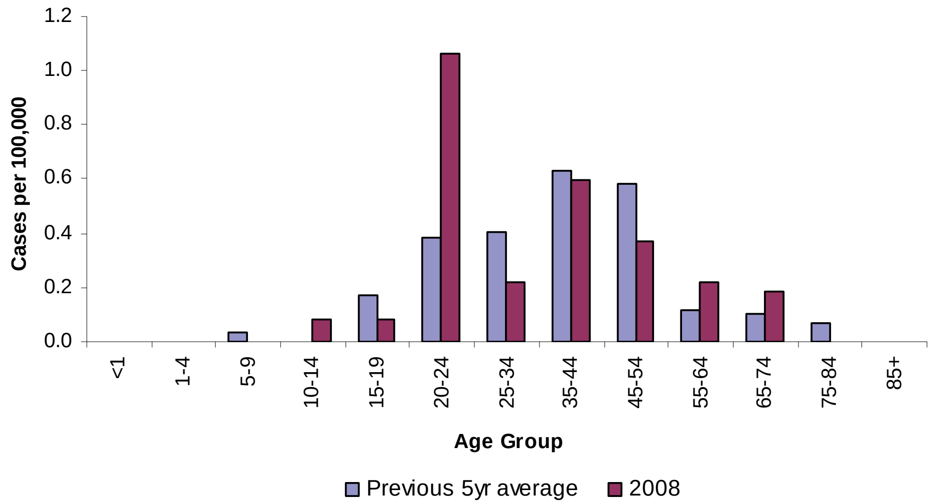
Disease Abstract
The incidence rate for acute hepatitis C has been variable over the last eight years, but has been increasing since 2005 (Figure 1). In 2008, there was a 1.43% decrease in comparison to the average incidence from 2003-2007. A total of 53 cases were reported in 2008, of which 60.38% were classified as confirmed cases. It is important to note that the hepatitis C acute surveillance case definition changed in 2008, therefore more cases may have been classified as confirmed compared to previous reporting years (2006:36%, 2007:34.7%, 2008:60.4%). There is no seasonal trend for acute hepatitis C infection (Figure 2). There were no acute hepatitis C cases classified as outbreak-related.

Figure 2.
Hepatitis C, Acute Cases by Month of Onset, Florida, 2008



The highest incidence rates for 2008 occurred among those 20 to 24 years old which is a change from historical trends where the highest rates occurred among those in the 35 to 44 year old age group, where the incidence actually decreased in 2008. In 2008, the incidence rates were higher than the previous 5-year average in those 10 to 14, 20 to 24, 55 to 64, and 65 to 74 years old (Figure 3).

Figure 3.
Hepatitis C, Acute Incidence Rate by Age Group, Florida, 2008

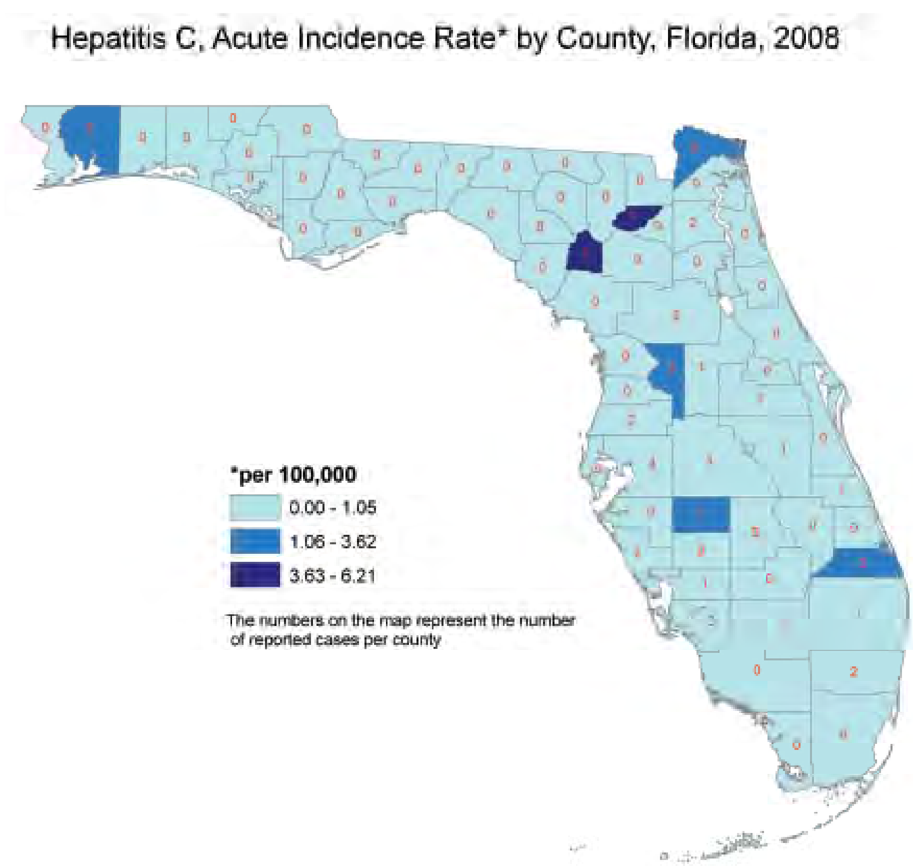


The passive transfer of maternal HCV antibodies may be present in infants up to 18 months of age. A positive Anti-HCV result in an infant <18 months is a not a true indicator of hepatitis C infection in an infant. In 2008, men and women had similar incidence of acute hepatitis C (0.29 per 100,000 and 0.27 per 100,000 respectively). The incidence rates in whites are greater than those in non-whites.

Acute Hepatitis C was reported in 21 of the 67 counties in Florida.

Prevention

Universal precautions should be implemented for individuals in contact with body fluids in health care settings. High-risk groups for infection include drug abusers who share needles, healthcare workers who have contact with infected blood, MSM, people who have multiple sexual partners, household contacts of infected persons, and infants born to mothers who are hepatitis C carriers.



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J.L. Dienstag, "Sexual and perinatal transmission of hepatitis C," *Hepatology*, Vol. 26, No. 66S-70S, 1997.

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M.I Gismondi, E.I. Turazza, S. Grinstein, et al., "Hepatitic C Virus Infection in Infants and Children from Argentina," *Journal of Clinical Microbiology*, Vol. 42, 2004, pp. 1199-1202.

J.A. Hochman, W.F. Balistreri, "Chronic Viral Hepatitis: Always Be Current!," *Pediatrics in Review*, Vol. 24, 2003, pp. 399-410.

S. Kamili, et al., "Infectivity of Hepatitis C Virus in Plasma After Drying and Storage at Room Temperature," *Infection Control and Hospital Epidemiology*, Vol. 28, 2007, pp. 519-524.

Lead Poisoning

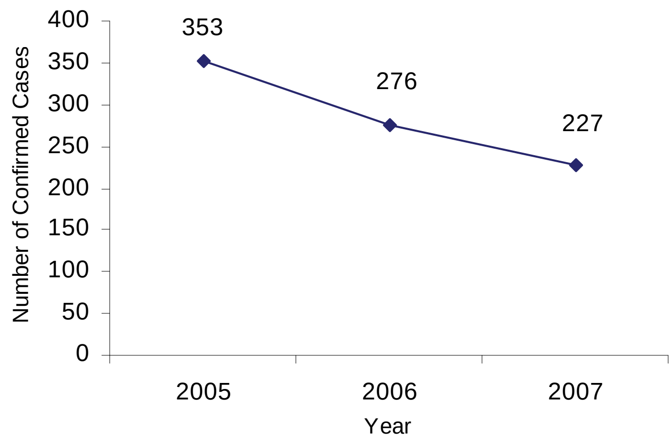
Disease Abstract

The Florida Childhood Lead Poisoning Prevention Program (FL CLPPP) monitors all reported blood lead levels in children less than 72 months of age. The program documents the reported number of children per year who meet the case definition of lead poisoning (≥ 10 ug/dL) and the reported number of children screened. Although some children are tested multiple times in a single year, only the first test per year is considered a screening test, all subsequent tests are considered follow-up tests.

The total number of new cases reported to FL CLPPP increased from 304 in 2005 to 389 in 2006. Additionally, an overall increase in lead screening was observed during that same time period. The 2007 and 2008 FL CLPPP laboratory data is not yet available due to data system limitations. A comprehensive review of that data will be completed in the future. The observed increase in cases of lead poisoning is likely explained by increased outreach and education in targeted counties and a subsequent increase in the reporting of blood lead data by physicians and laboratories. Additional efforts are underway to ensure that the laboratory data collected by FL CLPPP is available to the county health departments for timely follow-up on cases.

Currently, county health departments receive reports of lead poisoning cases from local physicians and local laboratories. These cases are entered into the State's notifiable disease reporting surveillance system, Merlin. Figure 1 shows that the number of confirmed lead poisoning cases in Florida for 2005 to 2007 as reported through Merlin. The data shows a steady decline in the number of confirmed cases reported from 2005 to 2007. The number of reported cases decreased from 353 in 2005 to 227 in 2007. Two hundred and seventy-six cases were reported in 2006. It should be noted that the number of confirmed cases reported in Merlin each year from 2005 to 2007 is not reflective of the total number of confirmed cases reported to the FL CLPPP surveillance system on an annual basis. Access to test result data from FL CLPPP at the county health department level would supplement the current reporting procedures of having physicians and local labs report to their respective counties. This will allow for consistency in the reporting of confirmed cases between FL CLPPP and Merlin surveillance data systems.

Figure 1: Confirmed Cases of Lead Poisoning Among Children Less Than 72 Months of Age as Reported in Merlin, Florida, 2005 to 2007



The discordance between the number of confirmed cases of lead poisoning reported in the two systems (FL CLPPP and Merlin) is a result of the way the data is initially collected. The FL CLPPP surveillance system collects all blood lead test results electronically from laboratories regardless of test result. County health departments rely on physicians and local laboratories to report cases with elevated blood lead levels. This system relies on the physician or laboratorian to know when and how to report the case and to whom to report it. Automated laboratory reporting is more complete and the number of cases reported to the FL CLPPP database is therefore expected to be larger than the number of cases reported in Merlin. That trend has been observed over the previous two years when comparing the available data.

Prevention

According to the CDC, Florida ranks eighth in the nation for the number of estimated children with lead poisoning. The CDC further estimates that 7,400 children with elevated blood lead levels live in nine Florida cities with populations of 100,000 or greater. In total, the CDC estimates that 22,000 children may suffer from lead poisoning in the state (CDC 2003 Program Announcement 03007, Appendix III). Lead poisoning is completely preventable. Prevention efforts of the FL CLPPP include ensuring parents, property owners, healthcare professionals, and those who work with young children are informed about the risks of lead poisoning and how to prevent it. Other prevention efforts have been initiated through the "Healthy Home" component of the program.

Additional Resources

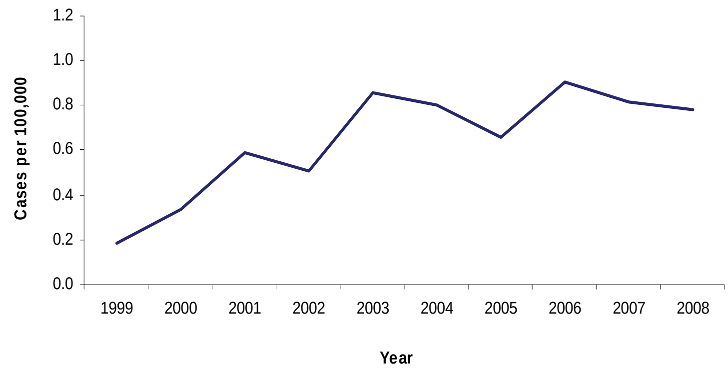
Florida Department of Health FL CLPPP website can be accessed at http://www.doh.state.fl.us/environment/medicine/lead/index.html.

Centers for Disease Control and Prevention (CDC) Lead Program website can be accessed at http://www.cdc.gov/nceh/lead/faq/about.htm.

Legionellosis

Legionellosis: Crude Data	
Number of Cases	148
2008 incidence rate per 100,000	0.78
% change from average 5-year (2003-2007) incidence rate	-3.08
Age (yrs)	
Mean	63.25
Median	64
Min-Max	22 - 92

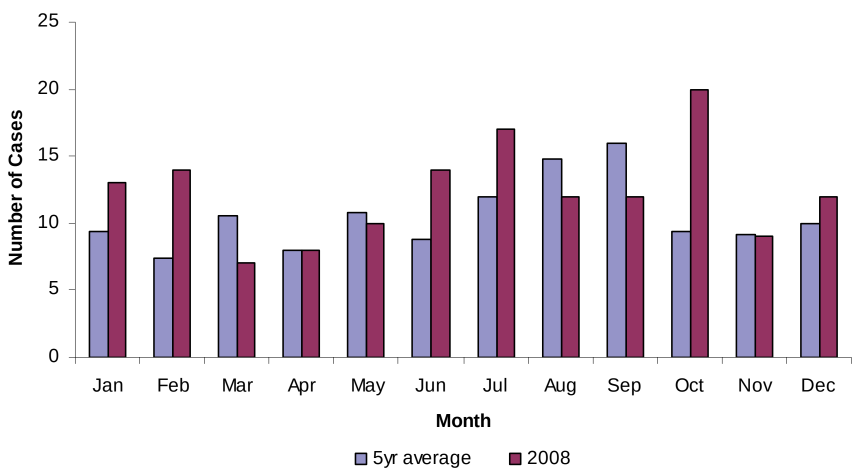
Figure 1.
Legionellosis Incidence Rate by Year Reported, Florida, 1999-2008



Disease Abstract

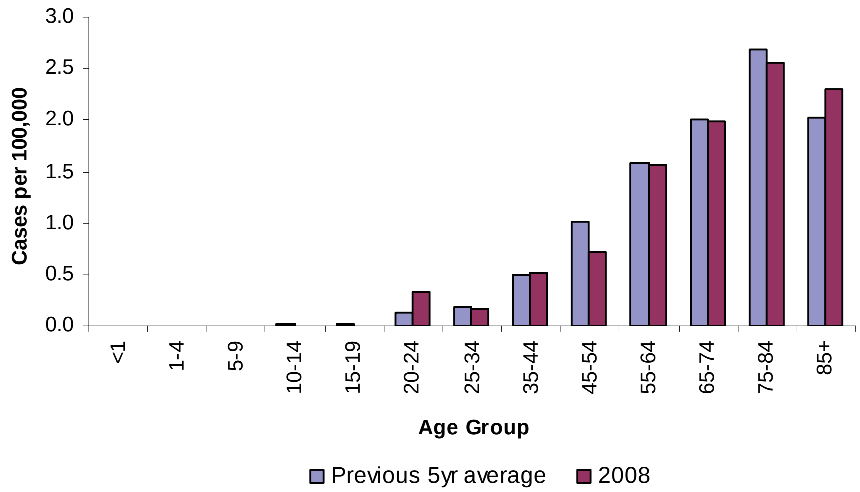
The Florida incidence rate for legionellosis has increased over the last ten years (Figure 1). In 2008, there was a 3.08% decrease in comparison to the average incidence from 2003-2007. A total of 148 cases were reported in 2008, of which 100% were classified as confirmed cases and 7.43% were acquired outside of Florida. The number of cases reported tends to increase in the summer months. In 2008, the number of cases exceeded the previous 5-year average for January, February, June, July, October, and December (Figure 2). Three of the legionellosis cases were classified as outbreak-related.

Figure 2.
Legionellosis Cases by Month of Onset, Florida, 2008



The highest incidence rates continue to occur among adults 45 years of age and older with incidence rates ranging from 0.71 per 100,000 in the 45-54 age group to 2.55 per 100,000 in the 75-84 age group. In 2008, the incidence rates were higher than the previous 5-year average in those 35-44 and those 85 and older; there was also a very interesting increase in incidence among those 20 to 24 years old. There were four cases reported in this age group for 2008 compared to only two cases in 2007. Incidence of disease is minimal in individuals <19 years of age, with no cases reported in the last 10 years in infants and children ages 1-9 (Figure 3). Males continue to have a slightly higher incidence than females (0.86 and 0.71 per 100,000, respectively).

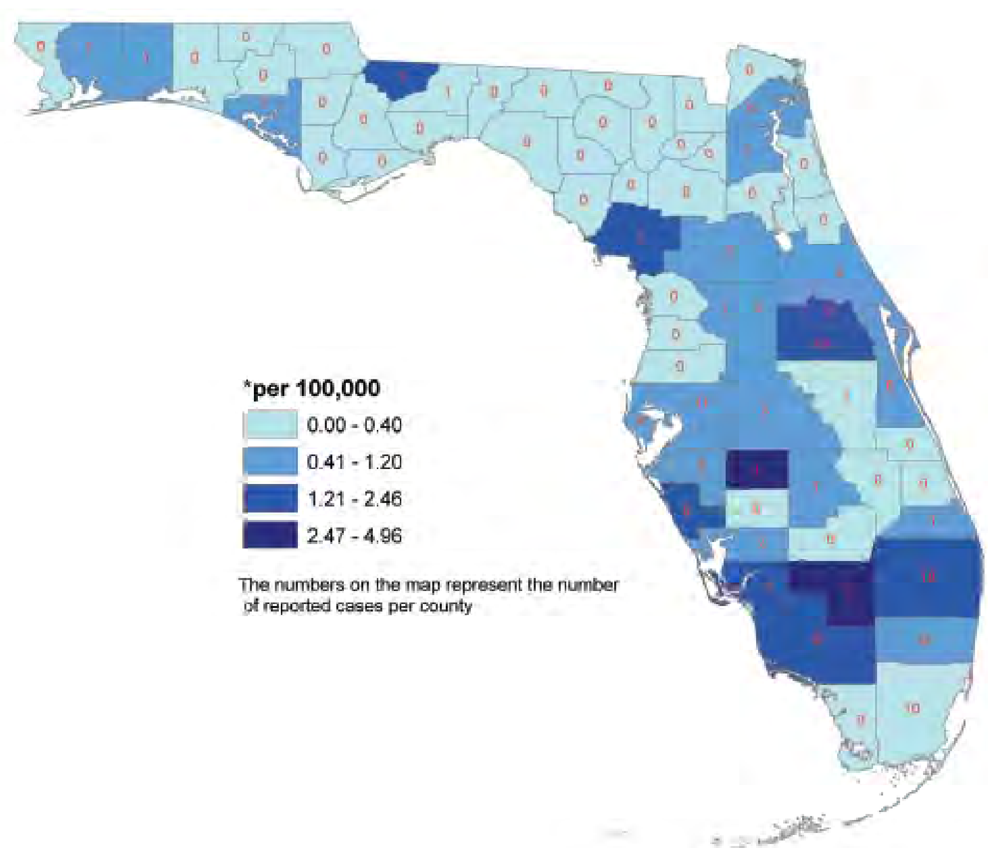
Figure 3.
Legionellosis Incidence Rate by Age Group, Florida, 2008



Legionellosis was reported in 30 of the 67 counties in Florida. Counties in the central, southwestern, and southeastern regions Florida reported the highest incidence rates.

Prevention
Cooling towers should be drained when not in use, and mechanically cleaned periodically to remove scale and sediment. Appropriate biocides should be used to limit the growth of slime-forming organisms. Tap water should not be used in respiratory therapy devices. Maintaining hot water system temperatures at 50°C (122°F) or higher as well as proper hot tub/spa maintenance may reduce the risk of transmission.

Legionellosis Incidence Rate* by County, Florida, 2008



References

David L. Heymann (ed.), *Control of Communicable Diseases Manual*, 18th ed., American Public Health Association Press, Washington, District of Columbia, 2004.

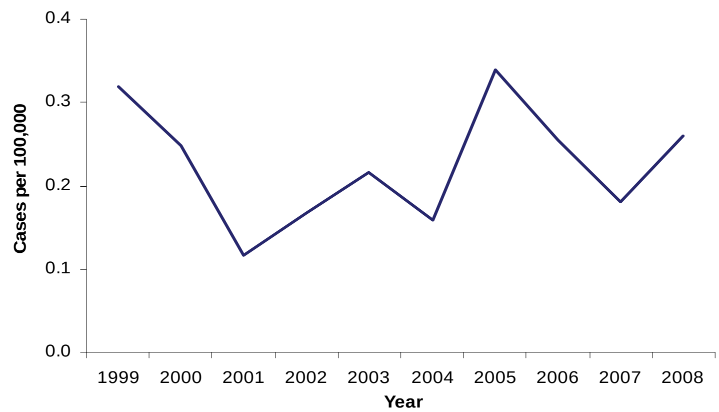
Additional Resources

Disease information is available from the Centers for Disease Control and Prevention (CDC) at http://www.cdc.gov/ncidod/dbmd/diseaseinfo/legionellosis_g.htm.

Listeriosis

Listeriosis: Crude Data	
Number of Cases	49
2008 incidence rate per 100,000	0.26
% change from average 5-year (2003-2007) incidence rate	11.62
Age (yrs)	
Mean	62.04
Median	70.5
Min-Max	<1 - 99

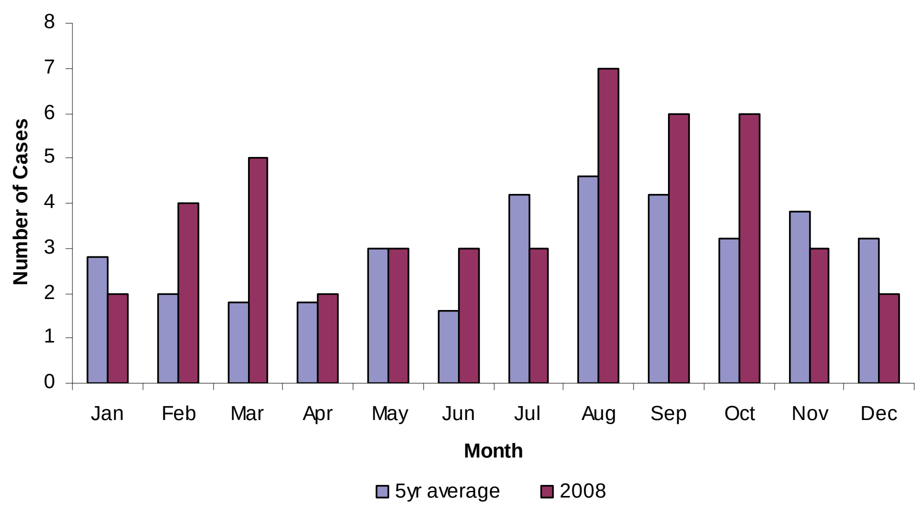
Figure 1.
Listeriosis Incidence Rate by Year Reported, Florida, 1999-2008



Disease Abstract

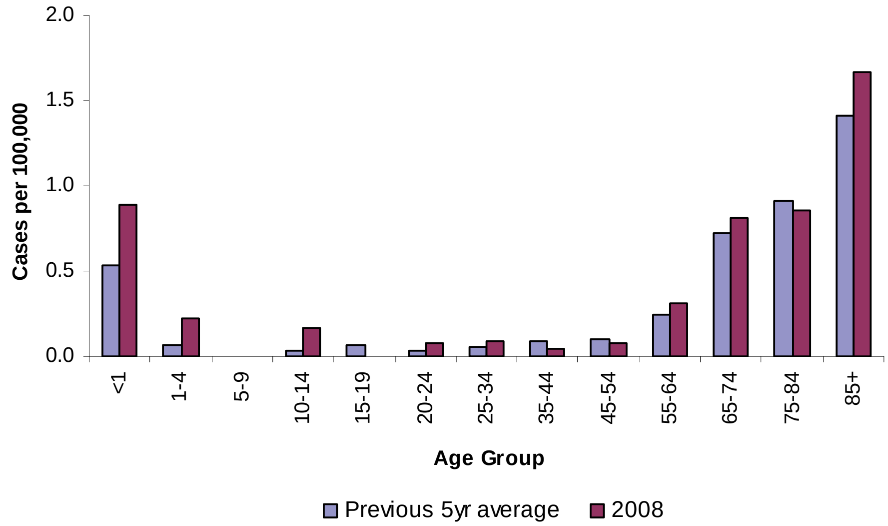
The reported incidence rate for listeriosis has been variable over the last ten years with no clear trend (Figure 1). In 2008, there was an 11.62% increase in comparison to the previous 5-year average incidence. A total of 49 cases were reported in 2008. All of the 2008 cases were sporadic and not outbreak-related. Historically, the number of cases reported tends to increase slightly in the late summer months with a high number of cases in July, August, and September. In 2008, a similar trend was observed with the number of cases exceeding the previous 5-year average during seven months of the year, most notably in August through October (Figure 2).

Figure 2.
Listeriosis Cases by Month of Onset, Florida, 2008



The very young and the elderly are at increased risk of infection in comparison to other age groups (Figure 3). In 2007, the incidence rate was higher than the previous 5-year average for most age groups except those 15-19, 35-44, 45-54, and 75-84. The incidence rate in males was higher than in females (0.33 and 0.20 per 100,000, respectively) for 2008 which is different from the historical trend. Historically, incidence rates in whites are greater than those in non-whites, and this was seen in 2008 as well, with white males having the highest incidence.

Figure 3.
Listeriosis Incidence Rate by Age Group, Florida, 2008

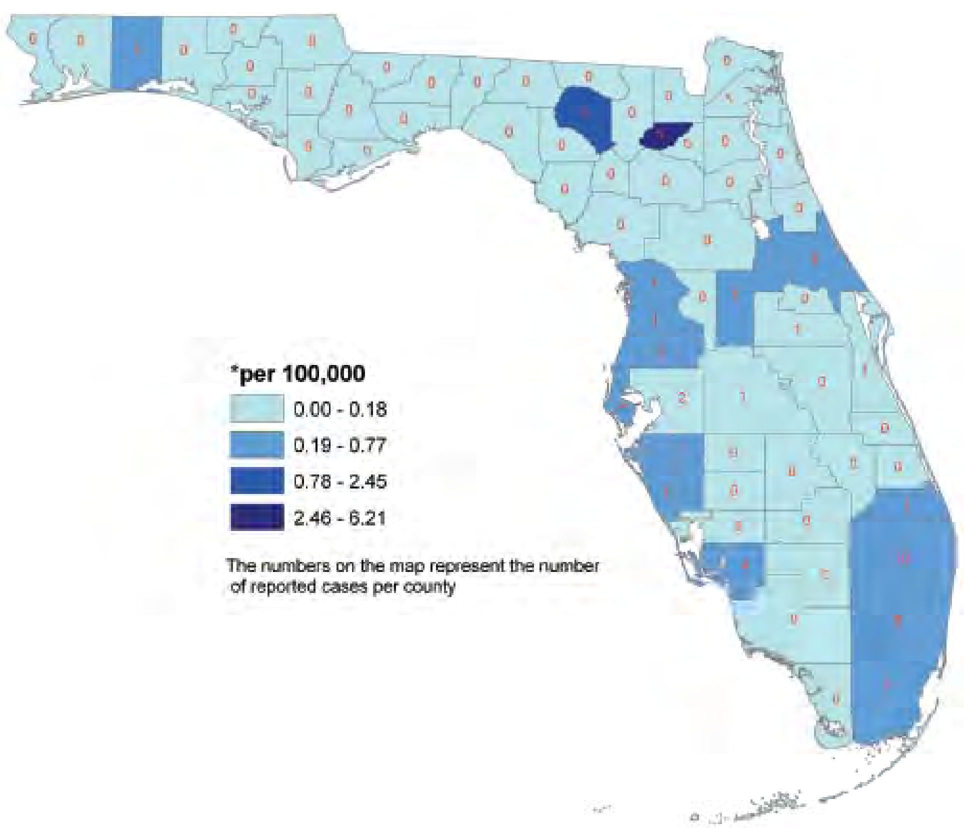


Listeriosis was reported in 21 of the 67 counties in Florida.

Prevention

Generally, listeriosis may be prevented by: thoroughly cooking raw food from animal sources, such as beef, pork, or poultry; washing raw vegetables before eating; and keeping uncooked meats separate from vegetables, cooked foods, and ready-to-eat foods. Avoiding unpasteurized milk or foods made from unpasteurized milk, and washing hands, knives, and cutting boards after handling uncooked foods may also prevent listeriosis. Those at high risk for listeriosis (the elderly, pregnant women, those with cancer, HIV, diabetes, or weakened immune systems) should follow additional recommendations: avoid soft cheeses such as feta, brie, camembert, blue-veined, and Mexican-style cheese. Leftover foods or ready-to-eat foods, such as hot dogs or cold cuts, should be cooked until steaming hot before eating.

Listeriosis Incidence Rate* by County, Florida, 2008



References

David L. Heymann (ed.), *Control of Communicable Diseases Manual*, 18th ed., American Public Health Association Press, Washington, District of Columbia, 2004.

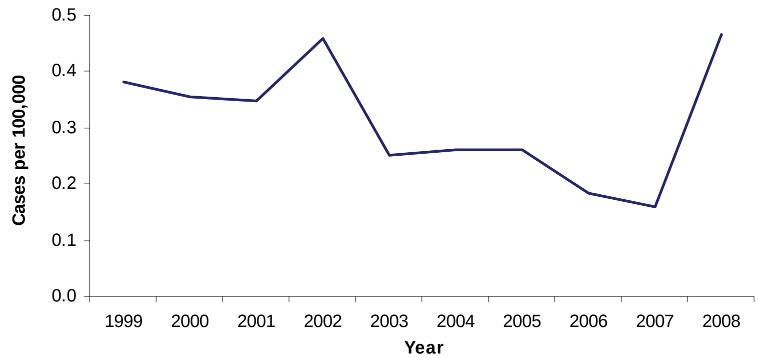
Additional Resources

Disease information is available from the Centers for Disease Control and Prevention (CDC) at http://www.cdc.gov/ncidod/dbmd/diseaseinfo/listeriosis_g.htm.

Lyme Disease

Lyme Disease: Crude Data	
Number of Cases	88
2008 incidence rate per 100,000	0.47
% change from average 5-year (2003-2007) incidence rate	109.49
Age (yrs)	
Mean	39.56
Median	40.5
Min-Max	1 - 84

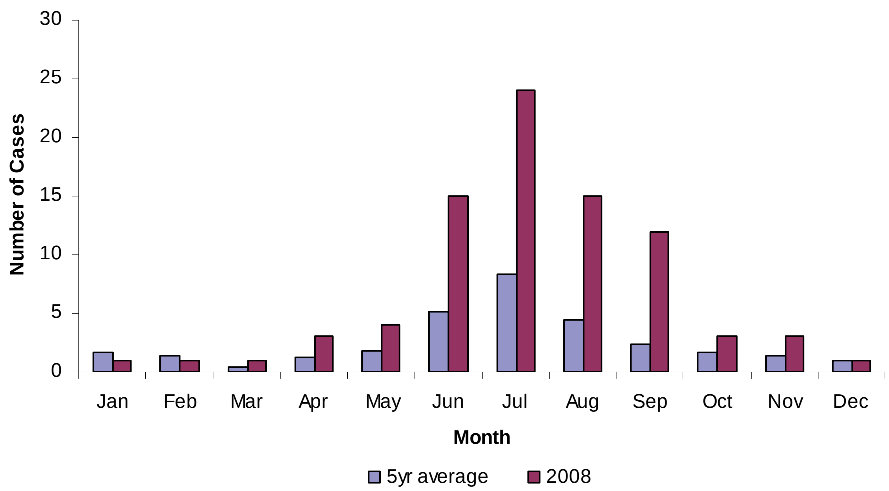
Figure 1.
Lyme Disease Incidence Rate by Year Reported, Florida, 1999-2008



Disease Abstract

The reported incidence rate for Lyme disease caused by *Borrelia burgdorferi* in Florida has dropped steeply over the past ten years, but there was a very sharp increase in incidence between 2007 and 2008 (Figure 1). In 2007, there had been a 43.03% decrease in comparison to the average incidence from 2002-2006. Changes in testing procedures by private laboratories may have contributed to this decline. Prior to 2008, a positive ELISA test followed by a Western blot was required to meet surveillance criteria for case confirmation. Some laboratories provided only EIA testing which did not allow cases to meet the case definition, or did not report the results of the Western Blot testing along with the initial EIA result. These practices could have resulted in recognition of fewer cases and a decline in the reported incidence. However, in 2008 there was a 109% increase in reported cases over the previous 5-year average which can be partly attributed to a change in the case definition and possibly to increased public awareness and media attention. In Florida, the increase was primarily observed in cases imported from out of state, particularly from the northeast United States. There are gaps in knowledge regarding other *Borrelia* species that might be present in Florida.

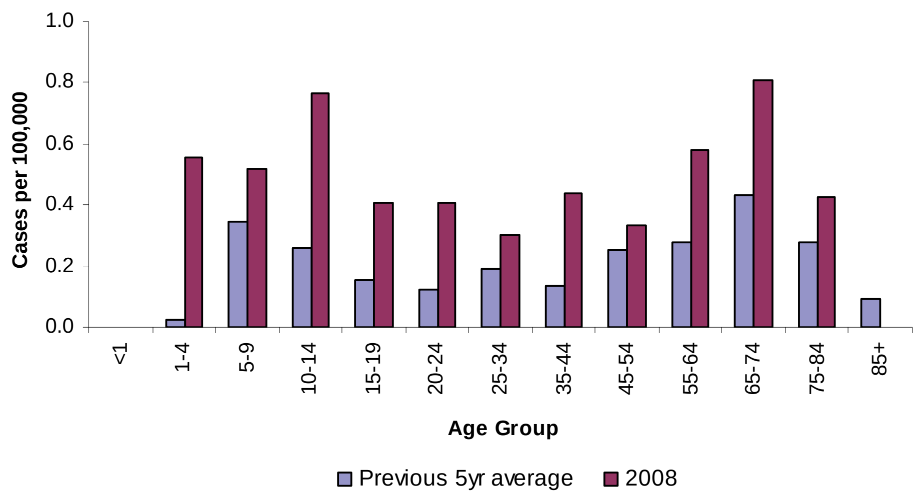
Figure 2.
Lyme Disease Cases by Month of Onset, Florida, 2008



A total of 88 cases were reported in 2008, of which 82% were classified as confirmed cases. A smaller proportion of cases were acquired in the state of Florida for 2008 (11 cases, 13%) as compared to 2007 (9 cases, 30%) but the majority of cases (71 cases, 81% in 2008) were acquired outside of the state for both years. Most imported cases were acquired in the northeast United States, particularly New York, Massachusetts, and Connecticut. Highest case incidence was in the summer, with peak incidence in July, but cases occurred year round. In 2008, the number of cases exceeded the previous 5-year average in all months except January, February, and December, which are low periods of tick activity (Figure 2). Two of the 2008 imported cases from Minnesota were classified as outbreak related.

The highest incidence in 2008 was in 65- to 74-year-olds which is consistent with the previous 5-year average for age. Three of the four highest age group incidences were in older patients (65-74, 75-84, and those 85 and over) compared to the nationally reported peak incidence group of 45-54. More consistent with national trends is the peak in children aged five to nine years old and those 10-14 (Figure 3). Incidence rates in whites continue to be higher than in non-whites with the highest incidence occurring among white males (0.64 per 100,000) and the second highest incidence occurring among white females (0.41 per 100,000).

Figure 3.
Lyme Disease Incidence Rate by Age Group, Florida, 2008

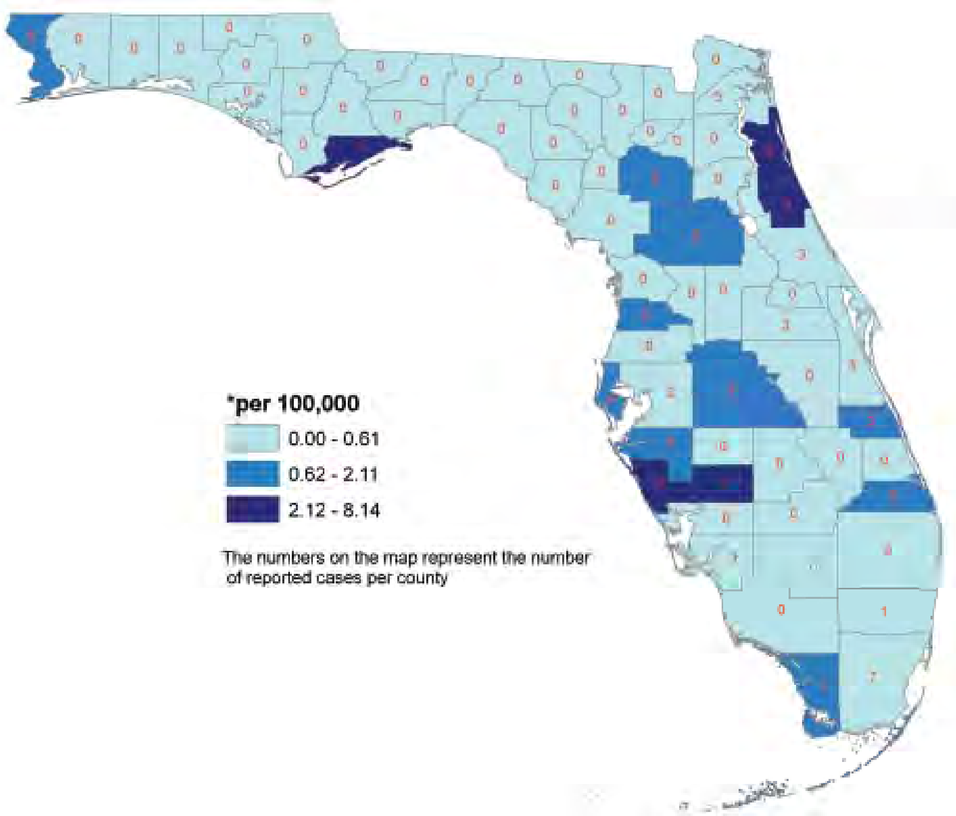


Lyme disease was reported in 24 of 67 Florida counties. Most cases were reported from central and south Florida, with four cases reported from the Panhandle.

Prevention

The most effective prevention is avoiding human and pet exposure to ticks including: avoiding tick infested areas; covering exposed skin as much as possible; wearing light colored clothing to better see ticks; tucking in pant legs and buttoning sleeves; appropriate application of permethrin to clothing and DEET to skin (per CDC recommendations); inspecting children, pets, and adults for ticks immediately following likely exposure; and using appropriate veterinary products as recommended by a veterinarian to prevent tick exposure. Landscaping measures around the home to reduce ground cover can also reduce contact with ticks. Any ticks found attached to children, adults, or pets should be removed promptly. Using fine tweezers or a tissue to protect fingers, grasp the tick close to the skin and gently pull straight out without twisting. Do not use bare fingers to crush ticks. Wash hands following tick removal. Most Florida cases are acquired in Lyme-endemic areas of the northeastern U.S.; these prevention measures are especially important while visiting those areas.

Lyme Disease Incidence Rate* by County, Florida, 2008



References

David L. Heymann (ed.), *Control of Communicable Diseases Manual*, 19th ed., American Public Health Association Press, Washington, District of Columbia, 2008.

L.K. Pickering, C.J. Baker, S.S. Long, and J.A. McMillan (eds.), *Red Book: 2006 Report of the Committee on Infectious Diseases*, 27th ed., American Academy of Pediatrics Press, 2006.

Additional Resources

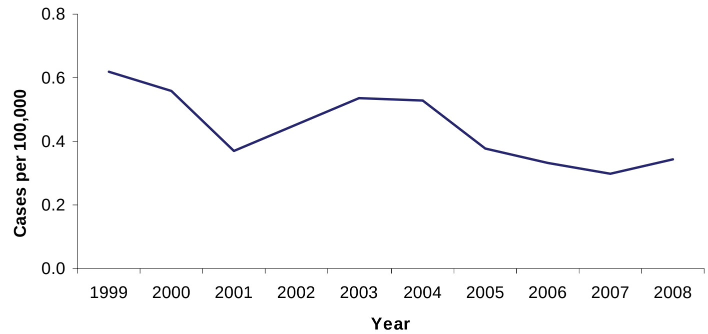
Disease information is available from the Centers for Disease Control and Prevention at http://www.cdc.gov/ncidod/dvbid/lyme/ and http://www.cdc.gov/healthypets/diseases/lyme.htm.

Disease information is available from the Florida Department of Health at http://www.doh.state.fl.us/Environment/medicine/arboviral/Tick_Borne_Diseases/Tick_Index.htm.

Malaria

Malaria: Crude Data	
Number of Cases	65
2008 incidence rate per 100,000	0.34
% change from average 5-year (2003-2007) incidence rate	-16.37
Age (yrs)	
Mean	39.43
Median	43
Min-Max	4 - 74

Figure 1.
Malaria Incidence Rate by Year Reported, Florida, 1999-2008

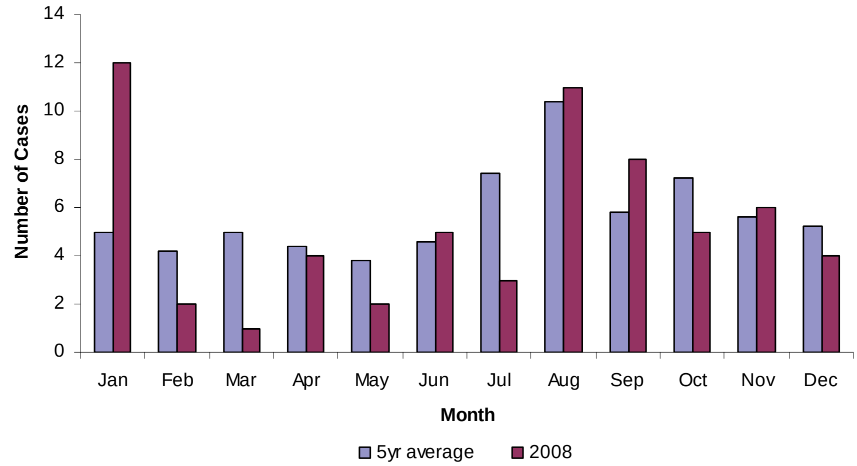


Disease Abstract

Human malaria is caused by four species of protozoan parasites of the genus *Plasmodium*: *P. vivax, P. falciparum, P. malariae,* and *P. ovale*. All four are transmitted to people via the bite and blood-feeding behavior of mosquitoes of the genus *Anopheles*. Malaria was endemic in Florida up until the 1940s. Currently, nearly all cases are among travelers returning to the state from malaria endemic regions of the world, though competent vectors do exist in the state, providing the possibility for local transmission. The incidence rate for malaria in Florida has declined over the last 10 years (Figure 1) with 65 cases reported in 2008. In 2008, there was a 16% decrease in comparison to the average incidence from 2003 to 2007. More cases are reported during the summer and early fall months, but cases are reported year-round (Figure 2). The highest historical incidence rates occur among those in the 20-34 age group but there was a second peak in 2008 in those 45-54 (Figure 3). The average age of reported malaria cases in Florida is 39.4 years (range: 4-74). In 2008, 86% of the 65 reported malaria cases were diagnosed with *P. falciparum* and 11% were diagnosed with *P. vivax*. One case was diagnosed with *P. ovale* and species was unable to be determined for one case. Sixty-nine percent of cases were non-white, 28% were white, and the remaining were of unknown race.

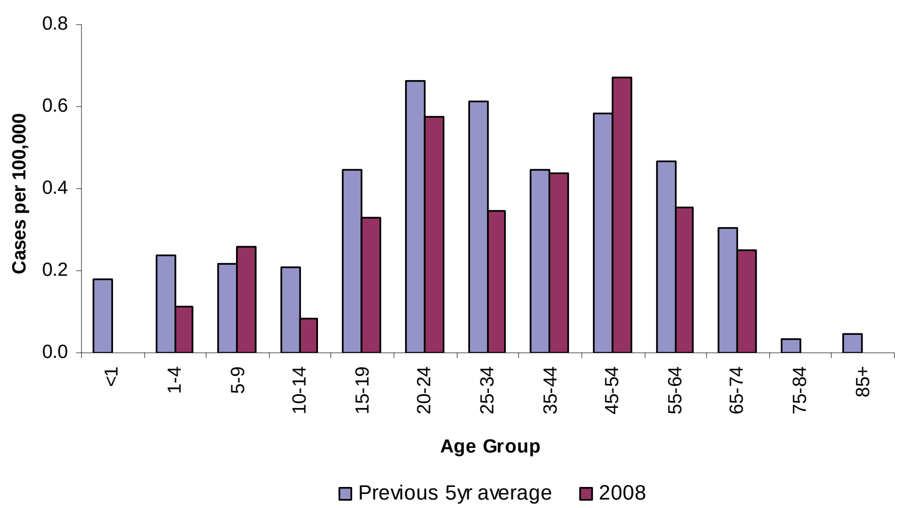
Thirty-eight percent of cases had recent travel history to Haiti, 26% traveled to Nigeria, 23% traveled to another African country, 9% traveled to Central or South America, and the remaining 3% traveled to countries in Asia. Of those for whom additional data was available (39/65), the largest proportion (49%) acquired malaria while visiting relatives or friends. Persons “visiting friends and relatives” are considered a high-risk group since prior immunity they may have had has waned and they tend to not take proper malaria prevention precautions. Other reasons for travel to malaria endemic areas were missionary/ volunteer work (33%) and tourism (8%). Malaria was also identified in new immigrants or students studying in the United States.

Figure 2.
Malaria Cases by Month of Onset, Florida, 2008

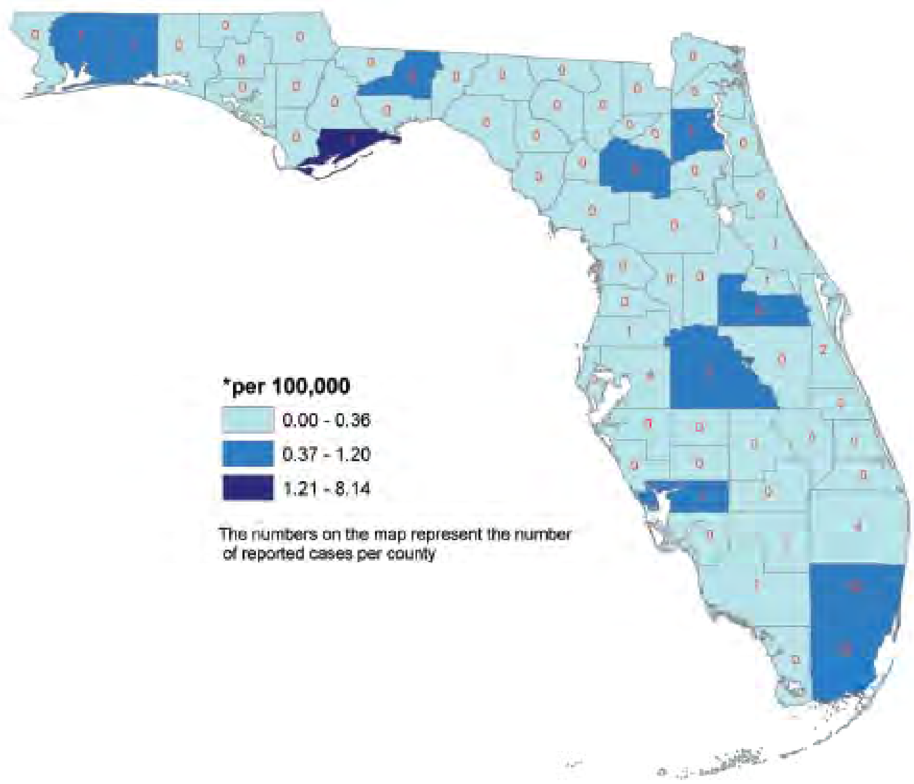


Prevention
No vaccine is currently available. Travelers to malaria-endemic countries should consult with their doctor to make sure they receive an appropriate preventative chemoprophylactic regimen and should also take the full course of chemoprophylaxis as prescribed. A number of factors should be taken into consideration prior to prescribing chemoprophylaxis including, but not limited to, risk, the species of malaria present, drug resistance, and how well the drug is tolerated. Personal protection measures can also help prevent malaria infection. Avoid contact with mosquitoes by using an insect repellent containing DEET or other EPA-approved ingredient, remaining in well-screened areas, keeping skin covered in clothing, and using insecticide-treated bed nets.

Figure 3.
Malaria Incidence Rate by Age Group, Florida, 2008



Malaria Incidence Rate* by County, Florida, 2008



References

Centers for Disease Control and Prevention, *Traveler's Health: Yellow Book, Health Information for International Travel, 2008*, 22 June 2007, http://wwwn.cdc.gov/travel/contentYellowBook.aspx.

Additional Resources

A table containing drugs used in malaria prophylaxis can be found in the CDC Yellow Book, online http://wwwn.cdc.gov/travel/yellowBookCh4-Malaria.aspx#404.

Additional information on malaria and other mosquito-borne diseases can be found in the *Surveillance and Control of Arthropod-borne Diseases in Florida Guidebook*, online at http://www.doh.state.fl.us/environment/medicine/arboviral/pdf_files/2009MosquitoGuide.pdf.

Measles

Disease Abstract

In 2008, one laboratory-confirmed case of measles was reported for a statewide incidence rate of 0.005 cases per 100,000 population. This is a significant decrease from the five cases reported in 2007 and the four cases reported in 2006. The 2008 case was imported from England where there has been an increase in measles activity over the past few years due to decreased vaccination rates. England currently has endemic transmission of measles. A case is officially classified as internationally imported when it has its source outside the country, with rash onset within 21 days after entering the country, and is not linked to local transmission.

Measles is a disease of urgent public health importance, so even one case requires tracking of all contacts and conducting interviews to assess susceptibility. Florida has many possible sources of infection due to the many foreign visitors each year, ease of international travel, and increasing incidence of measles in the U.S. and abroad. When a case is identified in another state or country, all possible contacts in Florida must be tracked in order to identify other potential cases and prevent continued transmission.

Prevention

Vaccination against measles is recommended for all children after their first birthday. Two doses of measles vaccine (preferably MMR) are required for entry and attendance in kindergarten through twelfth grade. All children attending or entering childcare facilities or family daycare must be age-appropriately vaccinated with one or two doses of measles vaccine.

References

Centers for Disease Control and Prevention, *Manual for the Surveillance of Vaccine-Preventable Diseases*, 4th ed., 2008, Chapter 7.

Additional Resources

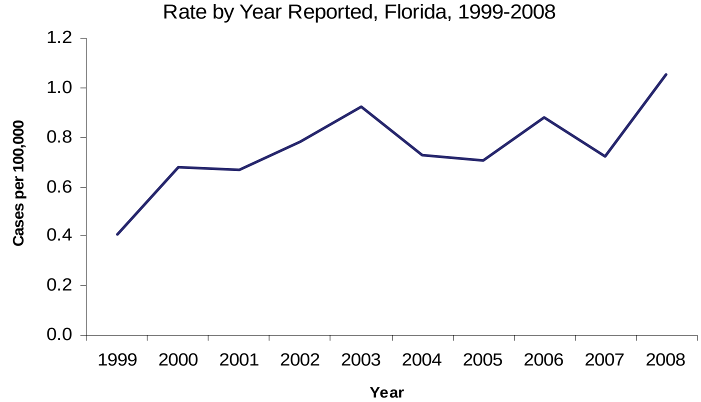
Disease information is available from the Centers for Disease Control and Prevention (CDC) at www.cdc.gov/vaccines/vpd-vac/measles/default.htm.

Recommended immunization schedule is available at: http://www.cdc.gov/vaccines/recs/ schedules/ default.htm.

Meningitis, Other

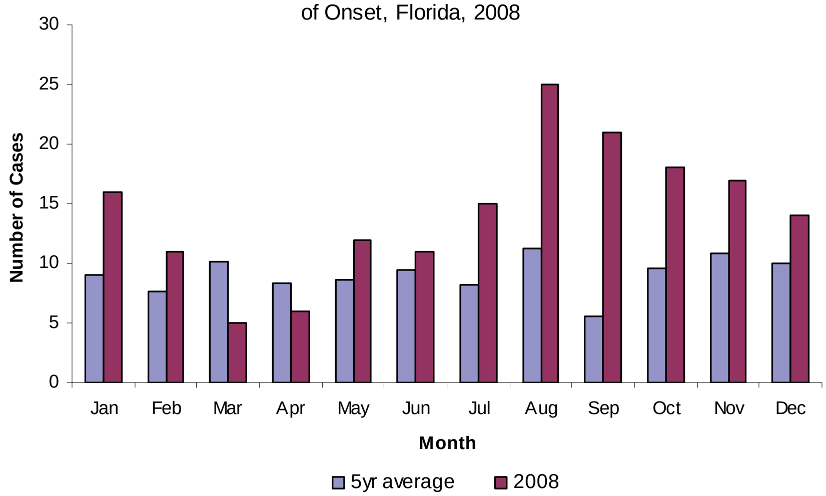
Meningitis, Other (bacterial, cryptococcal, mycotic): Crude Data	
Number of Cases	199
2008 incidence rate per 100,000	1.05
% change from average 5 year (2003-2007) incidence rate	33.44
Age (yrs)	
Mean	36.75
Median	41
Min-Max	<1 - 93

Figure 1.
Meningitis, Other (bacterial, cryptococcal, mycotic) Incidence Rate by Year Reported, Florida, 1999-2008



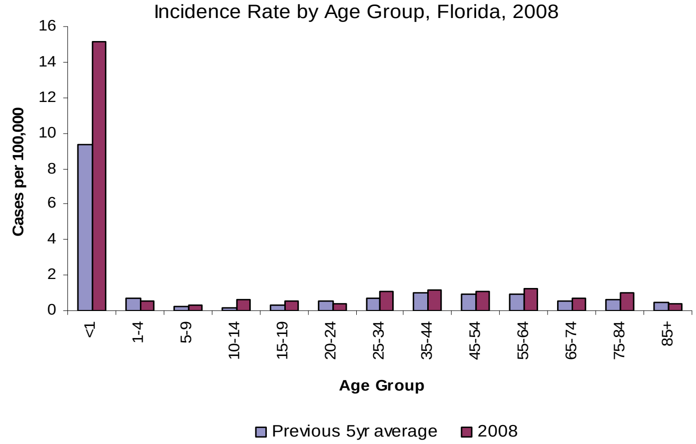
Disease Abstract
The “meningitis, other” category includes any meningitis due to any bacterial or fungal species other than *Neisseria meningitidis* or *Haemophilus influenzae*, with an isolate from the blood or cerebral spinal fluid. In 2008, some common pathogens isolated were *Cryptococcus* species (61), *Staphylococcal* species (40), *Streptococcal* species (27), *Klebsiella pneumoniae* (6), *Escherichia coli* (5), and *Pseudomonas* species (5).

Figure 2.
Meningitis, Other (bacterial, cryptococcal, mycotic) Cases by Month of Onset, Florida, 2008



The incidence rate of “meningitis, other” has increased gradually over the previous 10 years and in 2008 there was a 33.44% increase in the incidence rate as compared to the previous 5-year average (Figure 1). A total of 199 cases were reported in 2008, all confirmed. The number of cases of “meningitis, other” shows little difference by season when averaged over several years but there did seem to be increased incidence in the fall and winter of 2008 (Figure 2). There were no “meningitis, other” outbreaks in 2008.

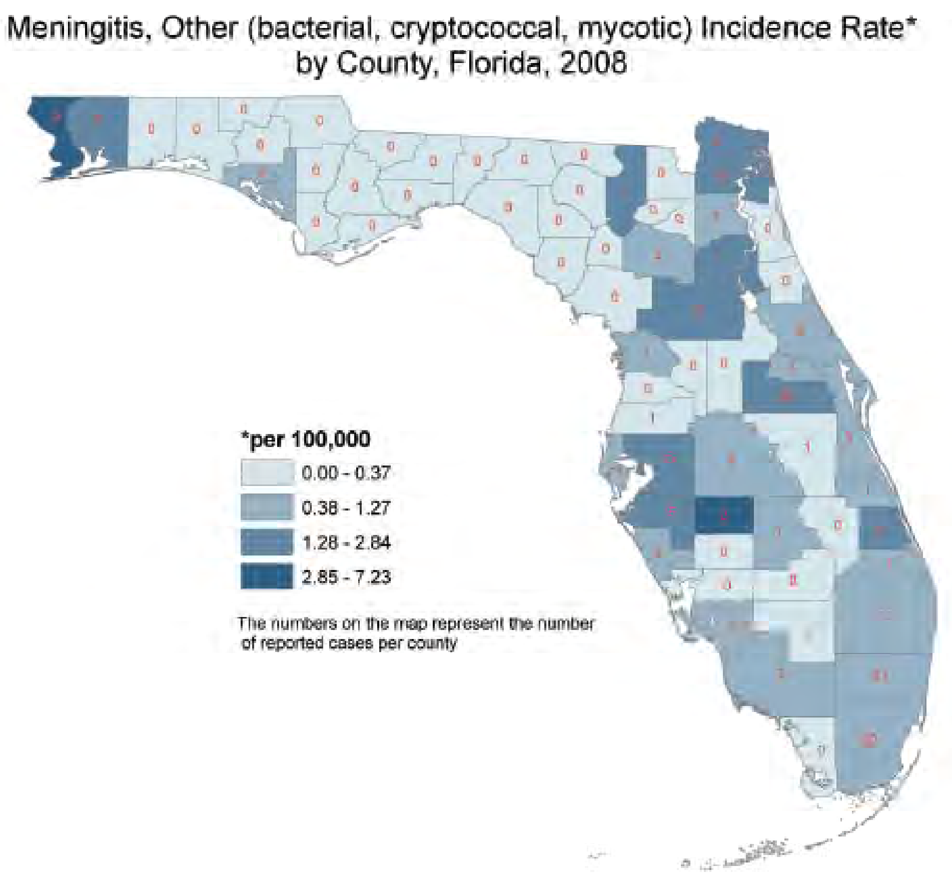
Figure 3.
Meningitis, Other (bacterial, cryptococcal, mycotic) Disease
Incidence Rate by Age Group, Florida, 2008



The highest incidence rates continue to occur in infants <1 year (Figure 3). Immunosuppressed or immunocompromised people in the older age groups may also be at risk for infection. Males continue to have a higher incidence than females (1.40 per 100,000 and 0.72 per 100,000 respectively). Incidence rates in non-white males are more than double the incidence rates in white males.

“Meningitis, other” was reported by 32 of the 67 counties in Florida. Counties with the highest incidence rates were widely scattered.

Prevention
Practicing good personal hygiene will reduce the chances of a fungal or bacterial infection.



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American Academy of Pediatrics. *Red Book 2003: Report of the Committee on Infectious Diseases*, 26th ed., Elk Grove Village, Illinois, American Academy of Pediatrics Press, 2003.

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J.H. Price, J. de Louvois, M. R. Workman, "Antibiotics for *Salmonella* meningitis in children," *Journal of Antimicrobial Chemotherapy*, Vol. 46, 2000, pp. 653-655.

A. Varaiya, K. Saraswathi, U. Tendolkar, A. De, S. Shah, M. Mathur, "*Salmonella enteritidis* meningitis – A case report," *Indian Journal of Medical Microbiology*, Vol. 19. 2001, pp. 151-152.

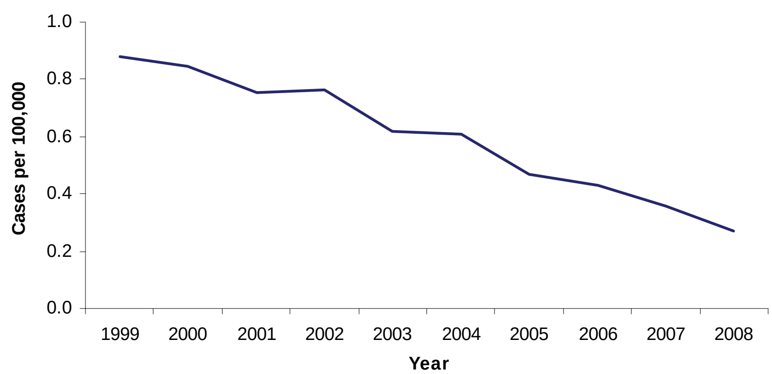
A. Zuger, E. Louie, R.S. Holzman, M.S. Simberkoff, J.J. Rahal, "*Cryptococcal* disease in patients with the acquired immunodeficiency syndrome. Diagnostic features and outcome of treatment," *Annals of Internal Medicine*, Vol. 104, 1986, pp. 234-40.

A. Lerche, N. Rasmussen, J.H. Wandall, V.A. Bohr, "*Staphylococcus aureus* meningitis: a review of 28 community acquired cases," *Scandinavian Journal of Infectious Diseases*, Vol. 27, No. 6, 1995, pp. 569-573.

Meningococcal Disease

Meningococcal Disease: Crude Data	
Number of Cases	51
2008 incidence rate per 100,000	0.27
% change from average 5-year (2003-2007) incidence rate	-45.19
Age (yrs)	
Mean	33.45
Median	30
Min-Max	<1 - 83

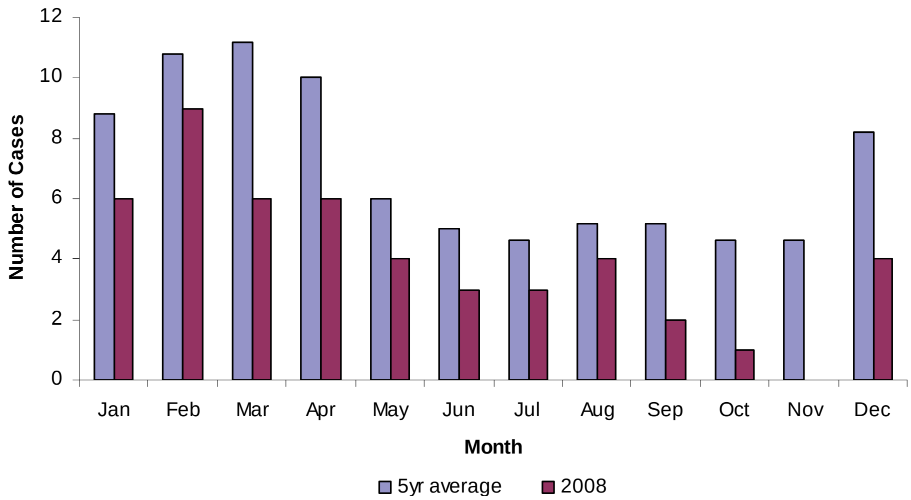
Figure 1.
Meningococcal Disease Incidence Rate by Year Reported, Florida, 1999-2008



Disease Abstract

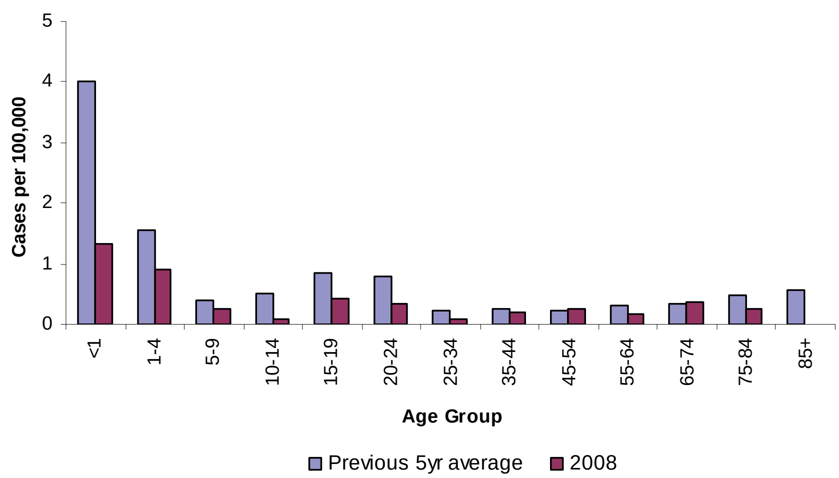
Meningococcal disease includes both meningitis and septicemia due to the bacteria *Neisseria mengitidis*. There are many different serogroups of *Neisseria menigitidis* around the world. The common ones in the United States include A, B, C, W-135, and Y. The reported incidence rate for meningococcal disease has declined gradually over the previous 10 years, and in 2008 was less than half of what it was 10 years ago (Figure 1). In 2008, there was a 45.19% decrease in comparison to the average incidence from 2003-2007. A total of 51 cases were reported in 2008, of which 96% were classified as confirmed cases. There is a general increase in cases in early winter and late spring (Figure 2). This may be due in part to social gatherings as well as staying indoors in the fall and winter months. There were four cases reported as outbreak-related in 2008 due to a primary and secondary case among family members. There were seven cases that resulted in death.

Figure 2.
Meningococcal Disease Cases by Month of Onset, Florida, 2008



The highest incidence rates continue to occur in infants <1 year. There are no vaccines approved for use in those less than two years old. In 2008, the incidence rates were lower than or equal to the previous 5-year average in all age groups (Figure 3). In 2008, the incidence rate in white females was greater than that in non-white females (0.32 and 0.05 per 100,000, respectively). Forty-five of the 51 cases had specimens submitted to the Bureau of Laboratories for serogrouping (Table 1).

Figure 3.
Meningococcal Disease Incidence Rate by Age Group, Florida, 2008



Meningococcal disease was reported in 21 of the 67 counties in Florida. Counties in central and northeastern Florida reported the highest incidence rates.

Table 1. Cases of Meningococcal Disease, by Serogroup, Florida, 2008

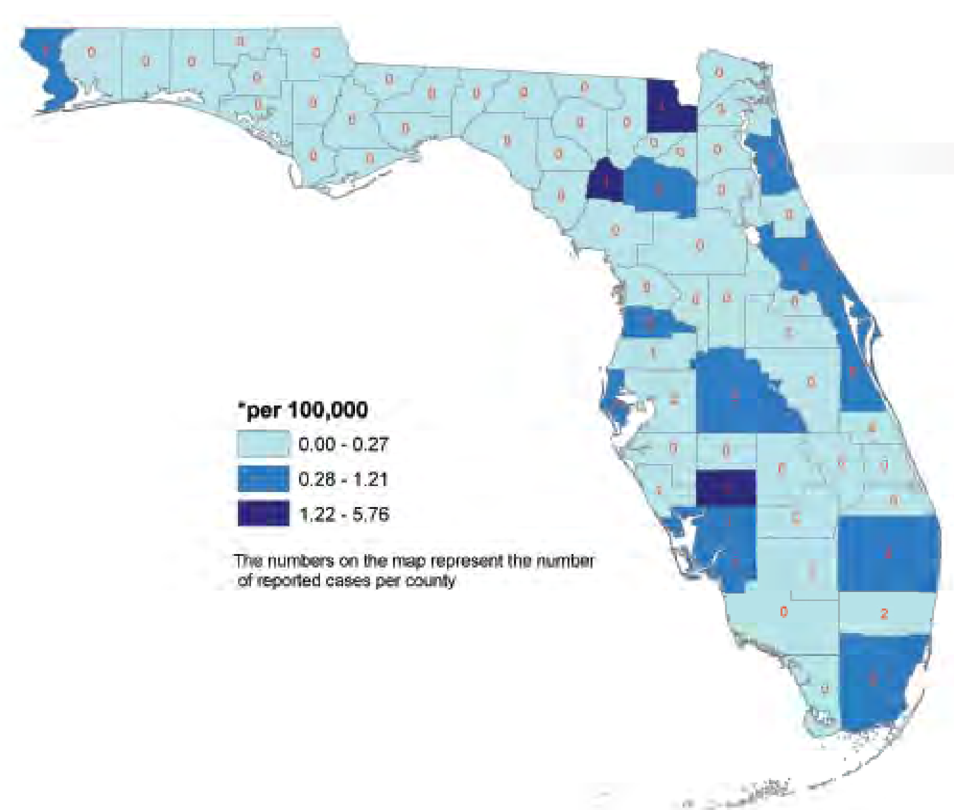
Serogroup	Number of Cases
Group A	0
Group B	17
Group C	7
Group Y	13
Group W-135	5
Non-Groupable	1
Not Answered	7
Unknown	1
Total	51

Prevention

Meningococcal vaccines are available to reduce the likelihood of contracting *Neisseria meningitidis*. Two vaccines, licensed in 1978 and 2005, each provide protection against four serogroups (A, C, Y, and W-135) and are recommended for selected populations at increased risk of meningococcal disease. In addition, droplet precautions should be implemented if the individual is hospitalized. Anyone who has close contact with an infected person's respiratory or oral secretions (i.e., kissing, sharing utensils or drinks, exposure to respiratory secretions during health care or resuscitation, or close household or social contact) should receive antibiotic prophylaxis with an approved regimen (most often used are ciprofloxacin and rifampin).

Please see "Section 4: Summary of Antimicrobial Resistance Surveillance" for additional information on MeningNet, an enhanced meningococcal surveillance system used to monitor antimicrobial susceptibility.

Meningococcal Disease Incidence Rate* by County, Florida, 2008



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Centers for Disease Control and Prevention, “Prevention and Control of Meningococcal Disease,” *Morbidity and Mortality Weekly Report*, Vol. 54, No. RR07, 2005, pp.1-21.

Centers for Disease Control and Prevention, “Control and prevention of meningococcal disease and control and prevention of serogroup C meningococcal disease: evaluation and management of suspected outbreaks; recommendations of the Advisory Committee on Immunization Practices (ACIP),” *Morbidity and Mortality Weekly Report*, Vol. 46, No. RR-5, 1997, pp. 1-21.

Centers for Disease Control and Prevention, “Meningococcal disease and college students: recommendations of the Advisory Committee on Immunization Practices (ACIP),” *Morbidity and Mortality Weekly Report*, Vol. 49, No. RR-7, 2000, pp. 11-20.

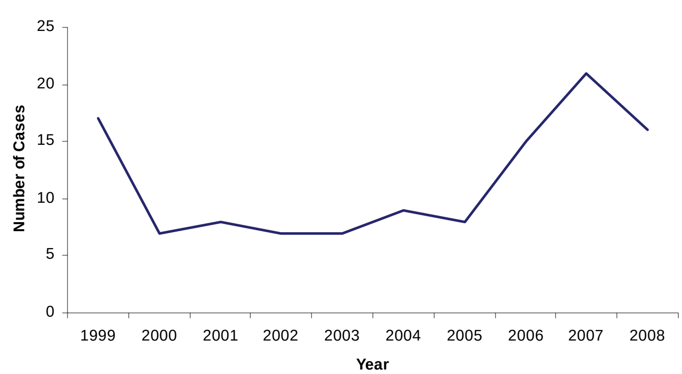
Additional Resources

Disease information is available from the Centers for Disease Control and Prevention (CDC) website at http://www.cdc.gov/ncidod/dbmd/diseaseinfo/meningococcal_g.htm and http://www.cdc.gov/vaccines/pubs/pinkbook/downloads/mening.pdf.

Mumps

Mumps: Crude Data	
Number of Cases	16
2008 incidence rate per 100,000	0.08
% change from average 5-year (2003-2007) reported cases	33.33
Age (yrs)	
Mean	23.5
Median	23
Min-Max	1 - 54

Figure 1.
Mumps Cases by Year Reported, Florida, 1999-2008

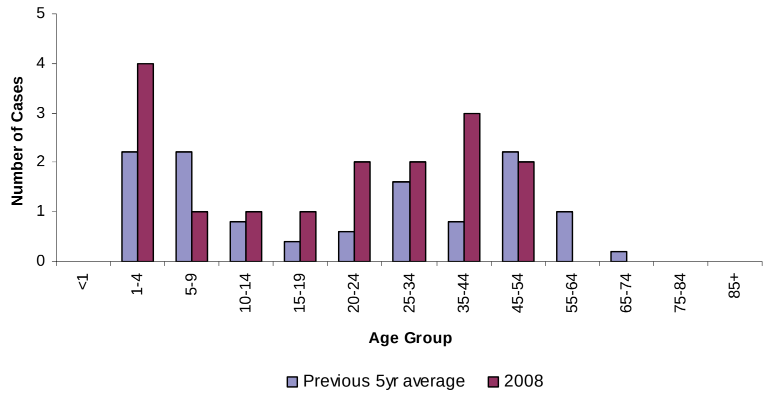


Disease Abstract

The statewide incidence rate for confirmed and probable cases of mumps for all ages was 0.08 per 100,000 population. The ages ranged from 1-54 years. There were 12 confirmed cases and four probable cases of mumps reported in 2008, of which one was acquired in a state other than Florida and four were acquired outside of the U.S. Three of the cases were hospitalized. Seven of the 16 total cases had received vaccine, two had no history of vaccine, and seven had unknown immunization status.

The twelve confirmed cases represent a slight increase from the ten confirmed cases in 2007 even though the total number of cases (confirmed plus probable) declined in 2008. Incidence of mumps was relatively unchanged from 2000 to 2005. However, in 2006 there was a significant increase in cases in the U.S., especially in the college-age population. This trend continued in 2007 with an increase of 128% over the average number of cases reported in the previous five years, but slowed for 2008 when there was an increase of 33% over the previous 5-year average.

Figure 3.
Mumps Cases by Age Group, Florida, 2008



Prevention
Vaccination with two doses of mumps (preferably MMR) vaccine is recommended. The first dose of MMR should be given at 12 months of age and the second dose at kindergarten entrance. Proof of MMR is required for entry and attendance in childcare facilities, family day care homes, and kindergarten through twelfth grade. Many colleges in Florida also require mumps vaccination for entry. After the 2006 multi-state mumps outbreak in young adults, two doses of mumps vaccine are now recommended for all children and young adults.

References
Centers for Disease Control and Prevention, *Manual for the Surveillance of Vaccine-Preventable Diseases*, 4th ed., 2008, Chapter 9.

Additional Resources
Disease information is available from the Centers for Disease Control and Prevention (CDC) at http://www.cdc.gov/vaccines/vpd-vac/mumps/default.htm#clinical.

Recommended immunization schedule is available at: http://www.cdc.gov/vaccines/recs/ schedules/default.htm.

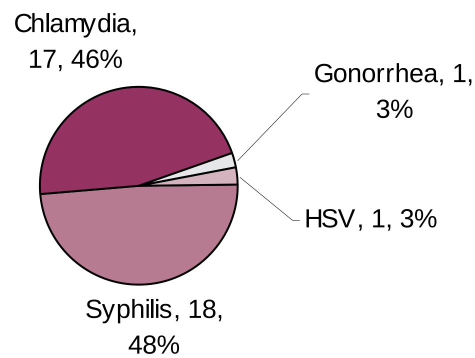
Neonatal Infections

Description
The term “neonatal infections” includes reported cases of chlamydia, gonorrhea, syphilis, herpes simplex virus (HSV), and human papillomavirus (HPV) diagnosed in infants up to six months of age. This extended age range is used in order to capture delayed identification of chlamydial pneumonia and human papillomavirus infections that are not readily identifiable upon birth. Reporting parameters for neonatal infections were updated in November 2008 in *F.A.C.* 64D-3.

Disease Abstract
In 2008, 11,150 pregnant women were infected with a sexually transmitted disease (STD). During the same time period, thirty-seven infants were diagnosed with an STD-related neonatal infection.

The 2008 distribution of these 37 neonatal infections by disease is displayed in Figure 1. During 2008, chlamydia and syphilis accounted for nearly 95% of these neonatal infections. There were no cases of HPV reported among neonates. Fourteen counties reported neonatal infections in 2008 with the highest number of neonatal infections occurring in Dade (12) followed by Broward (5) and Duval (4).

Figure 1. Reported Cases of Neonatal Infections, 2008



The racial/ethnic distribution of neonatal infections is reflective of trends seen in all reported STD cases, with an excess in minority populations. Non-Hispanic black neonates accounted for 54.1% of the neonatal infections; whereas non-Hispanic whites accounted for 21.8%. The remaining cases were reported in Hispanics (8.1%) or the other/unknown category (12.0%). There were no significant racial/ ethnic differences among disease categories.

Prevention

Inadequate or no prenatal care is the primary risk factor for neonatal infections. Untreated STD infections in pregnancy can have adverse effects on the baby before, during, or after the baby's birth. These infections remain a leading cause of preventable morbidity among newborns. Adverse outcomes include: low birth weight, eye infections, neurological damage, and death. However, the frequency and severity of complications related to STD infections in neonates are underestimated, as is the true burden of disease in Florida. It is imperative that women be routinely screened for STDs during pregnancy and be appropriately treated.

References

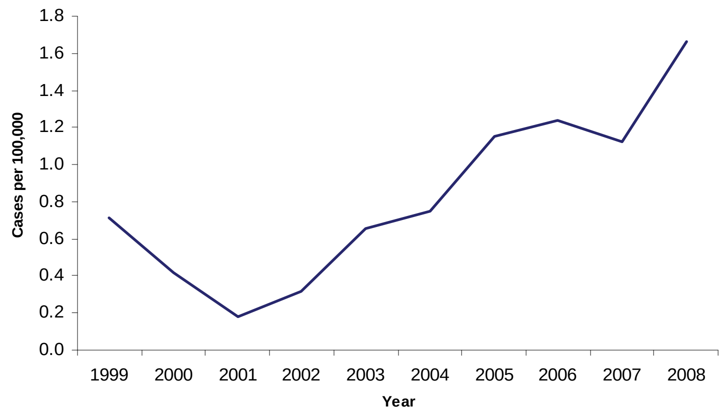
Florida Administrative Code, Chapter 64D-3. Florida Department of State. November 24, 2008. Available online at https://www.flrules.org/gateway/ChapterHome.asp?Chapter=64D-3.

Schrag SJ, Arnold KE, Mohle-Boetanie JC, et. al., "Prenatal Screening for Infectious Diseases and Opportunities for Prevention." *Obstetrics and Gynecology*, 2003, Vol. 102, pp. 753-760.

Pertussis

Pertussis: Crude Data	
Number of Cases	314
2008 incidence rate per 100,000	1.66
% change from average 5-year (2003-2007) incidence rate	67.60
Age (yrs)	
Mean	9.97
Median	5
Min-Max	<1 - 73

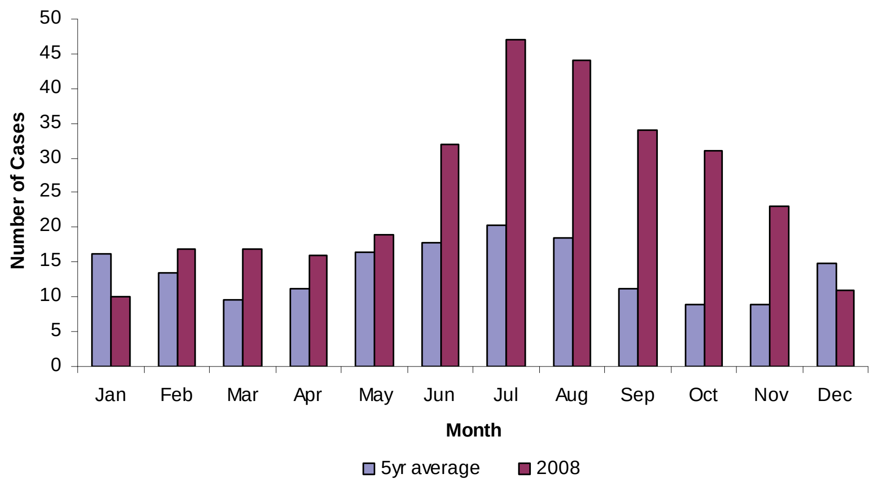
Figure 1.
Pertussis Incidence Rate by Year Reported, Florida, 1999-2008



Disease Abstract

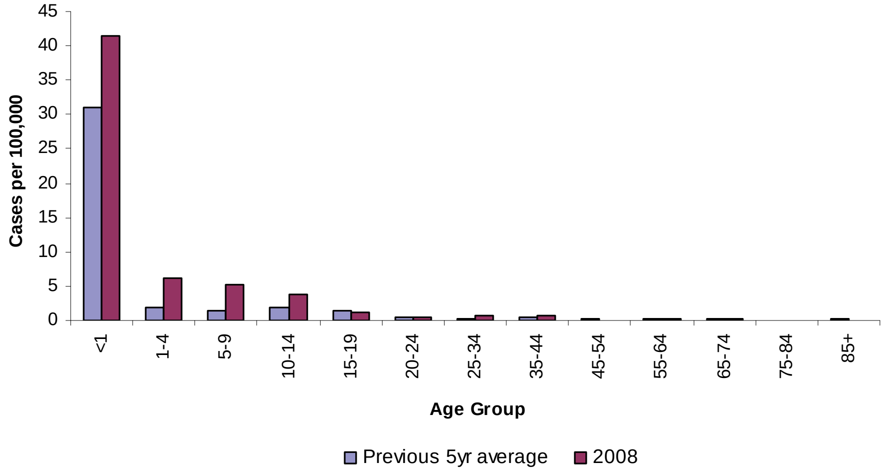
Disease trends in Florida, and nationwide, indicate that pertussis cases have increased significantly since 2001 (Figure 1). Case numbers went from 30 in 2001 (22 confirmed and 8 probable) to a high of 314 cases in 2008 (239 confirmed cases and 75 probable cases). In the previous five years, most cases occurred during the summer months, but many cases occurred in the fall and winter months of 2008 (Figure 2). In the previous five years, pertussis rates were similar by gender and race. In 2008, however, white males and females had significantly higher rates.

Figure 2.
Pertussis Cases by Month of Onset, Florida, 2008



As in the previous five years, most pertussis cases were identified in infants and young children. Of the 314 reported cases in 2008, 93 were reported in infants less than 12 months of age, too young to have completed the vaccination series (Figure 3). Of the 2008 cases, 208 were in children under nine years old, and 96 were hospitalized. One death occurred in a two-week-old Hispanic infant; the mother also had a cough illness that was undiagnosed. Another two-week-old Hispanic infant with pertussis developed acute encephalopathy with severe sequela. Case reports show that 139 cases did not receive vaccine; of these, 41 (30%) had refused vaccination.

Figure 3.
Pertussis Incidence Rate by Age Group, Florida, 2008

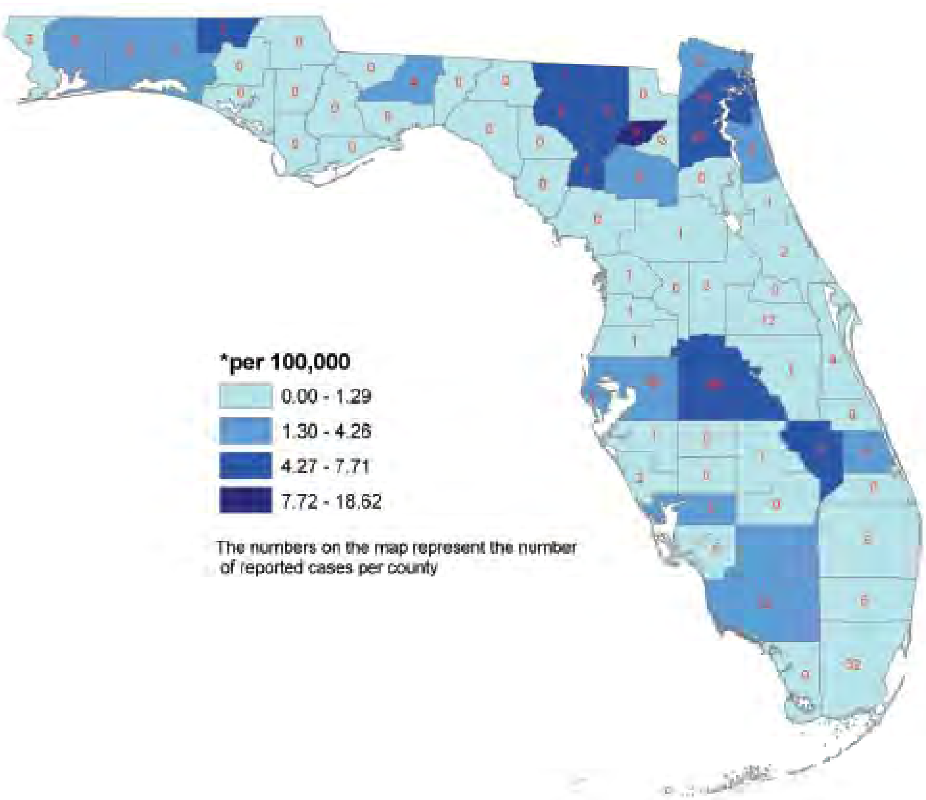


Pertussis was reported in 41 of the 67 counties in Florida. Counties in the northeast, northwest, and central regions of Florida reported the highest incidence rates.

Prevention

Currently, only acellular pertussis vaccines combined with diphtheria and tetanus toxoids (DTaP and Tdap) are available in the U.S. The five DTaP doses should be administered to children at two months, four months, six months, 15–18 months, and 4–6 years of age. This vaccine is also available in combination with other childhood vaccines. The increase in disease in the early teenage years indicates that immunity decreases over time. Vaccine recommendations now include one dose of Tdap vaccine to be given between 10 and 64 years of age. As of school year 2009-2010, Tdap vaccine is required to meet the seventh grade vaccination requirement. Post-exposure antibiotic and vaccine prophylaxis of close contacts of a case are the major outbreak control measures to stop pertussis transmission.

Pertussis Incidence Rate* by County, Florida, 2008



References

Centers for Disease Control and Prevention, *Manual for the Surveillance of Vaccine-Preventable Diseases*, 4th ed., 2008, Chapter 10.

Centers for Disease Control and Prevention, *Guidelines for the Control of Pertussis Outbreaks*. Centers for Disease Control and Prevention: Atlanta, GA, 2000. Web site: http://www.cdc.gov/vaccines/pubs/pertussis-guide/guide.htm

Additional Resources

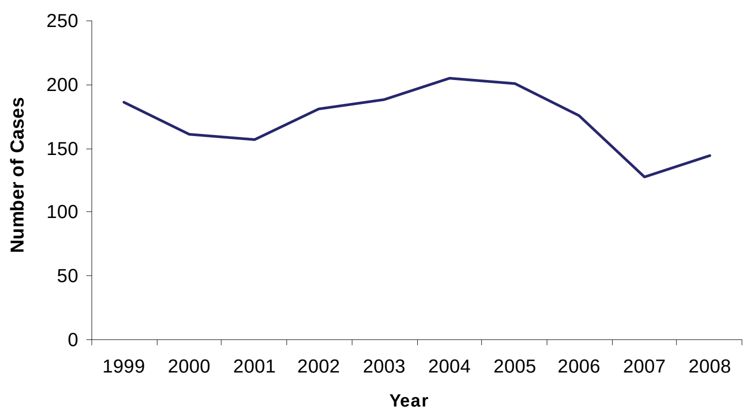
Disease information is available from the Centers for Disease Control and Prevention (CDC) at www.cdc.gov/vaccines/vpd-vac/pertussis/default.htm.

Recommended immunization schedule is available at: http://www.cdc.gov/vaccines/recs/ schedules/default.htm.

Rabies, Animal

Rabies, Animal: Crude Data	
Number of Cases	144
2008 incidence rate per 100,000	NA
% change from average 5-year (2003-2007) reported cases	-19.82
Age (yrs)	
Mean	NA
Median	NA
Min-Max	NA

Figure 1.
Animal Rabies by Year Reported, Florida, 1999-2008



Disease Abstract

From 1999 through 2008, there was one human rabies case in Florida. The person was bitten by a dog in Haiti in 2004 and became ill after returning to Florida. A canine variant strain of rabies then circulating in Haiti was isolated from the patient. In 2008, post-exposure treatment was recommended for 1,618 people in Florida; there were no human cases reported in 2008.

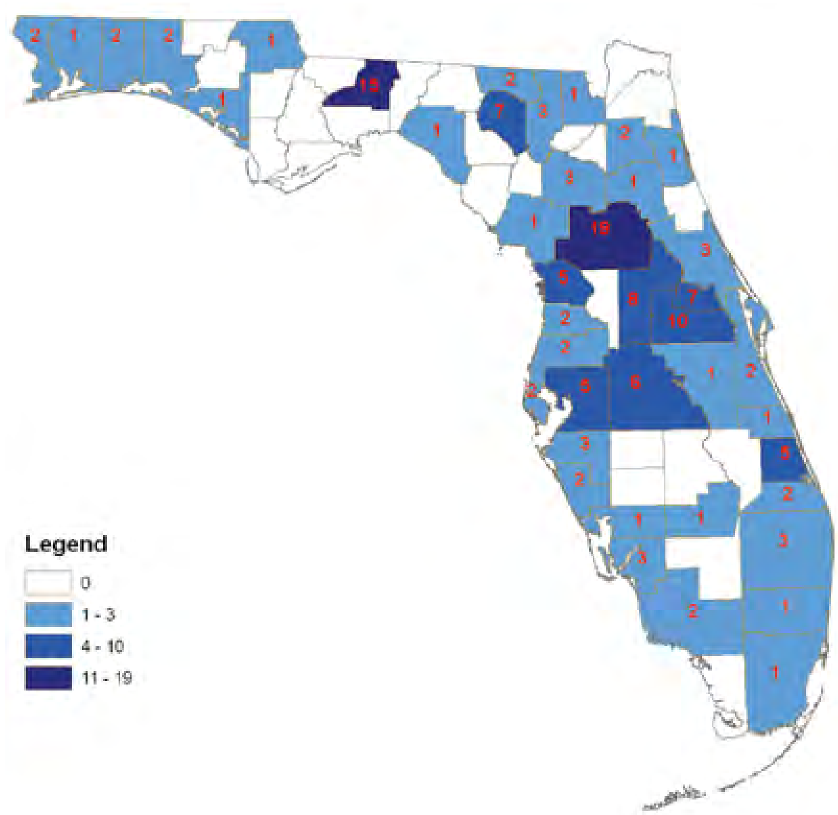
Rabies is endemic in the raccoon and bat populations of Florida, and frequently spills out from raccoons into other animal populations. Laboratory testing for animal rabies is only done when animals are involved in exposures to humans or domestic animals, and the data do not necessarily correlate with the true prevalence of rabies in Florida. Of the 3,598 animals tested at the Bureau of Laboratories (BOL) in 2008, there were 144 confirmed rabid animals, representing a 19.8% decrease from the previous 5-year average but a 10% increase from 2007. After a trough in reported cases in 2007 suspected to be associated with raccoon distemper outbreaks statewide, overall case numbers seem to be increasing to more typical levels (20-year avg. 186 cases/yr). No cases were identified as being associated with outbreaks. In 2008, rabid animals were found in 42 of 67 counties in Florida, with highest activity in the central part of the state. Three counties reported more than 10 cases: Leon (15); Marion (19); and Orange (10) (see map). Cases were reported in each month of the year, with peaks in July (17), June (15), and February (14). Case numbers peaked slightly earlier in 2008 as August is historically the peak month for rabies activity in Florida, and March rather than February is often a peak month in the early part of the year. Highest numbers of positive raccoon cases were reported in February, March, June, and July with nine cases each. September and April had the most rabid fox reports, with five and four cases respectively. Although rabid bat cases typically peak in August, in 2008 the most rabid bat cases were reported in October (4), followed by June (3) and July (3).

Raccoons once again accounted for the majority of cases (88, 61%), followed by foxes (20, 14%), bats (20, 14%), and cats (9, 6%). Two rabid raccoons that had been "adopted" as pets each exposed multiple people including children (see Section 6). There were no dogs found to be rabid in 2008, although over 1,000 were tested. Since 1997, rabid cats have continued to outnumber rabid dogs, though rabies vaccination is compulsory for both. All positive cats were either not vaccinated for rabies or had unknown rabies vaccination history. All positive cats were feral or primarily resided outdoors. Two of the cats that tested positive for rabies in 2008 each exposed 15 or more people (see Section 6). One horse and one mule were found to be rabid, and three bobcats and two skunks were also positive for rabies. Testing at the BOL demonstrates that terrestrial rabies in Florida is primarily due to the raccoon variant.

Prevention

During 2008, the Florida Rabies Advisory Committee revised the rabies guidebook to provide information for county health departments and others involved in rabies control and prevention. Other preventive measures include: vaccination of pets and at-risk livestock; avoiding direct human and domestic animal contact with wild animals; educating the public to reduce contact with stray and feral animals; supporting animal control in efforts to reduce feral and stray animal populations; bat-proofing homes; and providing pre-exposure prophylaxis for people in high risk professions, such as animal control and veterinary personnel, laboratory workers, and those working with wildlife. Pre-exposure prophylaxis should also be considered for those traveling extensively where rabies is common in domestic animals. Oral bait vaccination programs for wildlife are possible in some situations. These programs can be effective but require careful advance planning and substantial time and financial commitments.

Animal Rabies Cases by County, Florida, 2008



References

Florida Rabies Advisory Committee, *Rabies Prevention and Control in Florida, 2007*, Florida Department of Health, Bureau of Community Environmental Health, 2006.

David L. Heymann (ed.), *Control of Communicable Diseases Manual*, 18th ed., American Public Health Association Press, Washington, District of Columbia, 2004.

L.K. Pickering, C.J. Baker, S.S. Long, and J.A. McMillan (eds.), *Red Book: 2006 Report of the Committee on Infectious Diseases*, 27th ed., American Academy of Pediatrics Press, 2006.

Additional Resources

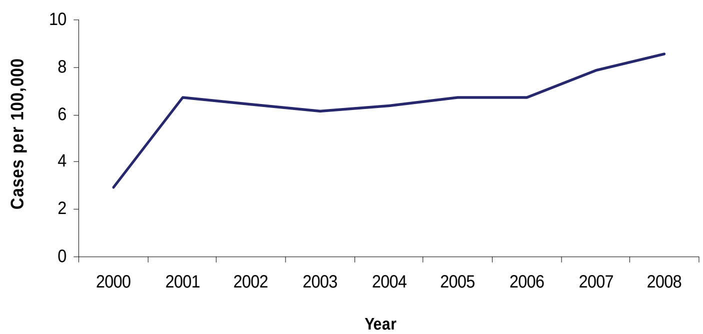
Information is available from the Florida Department of Health website at http://www.doh.state.fl.us/ environment/medicine/rabies/rabies-index.html

Disease information is also available from the Centers for Disease Control and Prevention (CDC) at http://www.cdc.gov/ncidod/dvrd/rabies/introduction/intro.htm.

Rabies, Possible Exposure

Rabies, Possible Exposure: Crude Data	
Number of Cases	1618
2008 incidence rate per 100,000	8.56
% change from average 5-year (2003-2007) incidence rate	26.04
Age (yrs)	
Mean	36.53
Median	36
Min-Max	<1 - 108

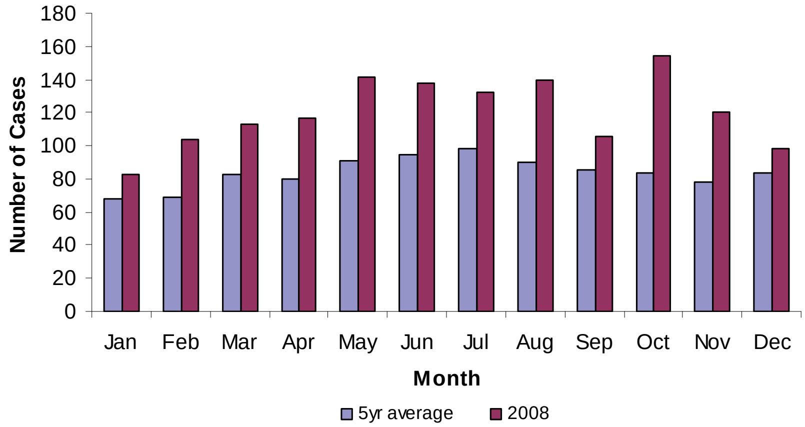
Figure 1.
Rabies, Possible Exposure Incidence Rate by Year Reported, Florida, 2000-2008



Disease Abstract

Electronic reporting through the Merlin system of animal encounters (bites, scratches, etc.) for which rabies post-exposure prophylaxis (PEP) is recommended was initiated in 2001. Rabies PEP is recommended when an individual is bitten, scratched, or has mucous membrane or flesh wound contact with the saliva or nervous tissue of a laboratory confirmed rabid animal or a suspected rabid animal that is not available for testing.

Figure 2.
Rabies, Possible Exposure Cases by Month of Onset, Florida, 2008

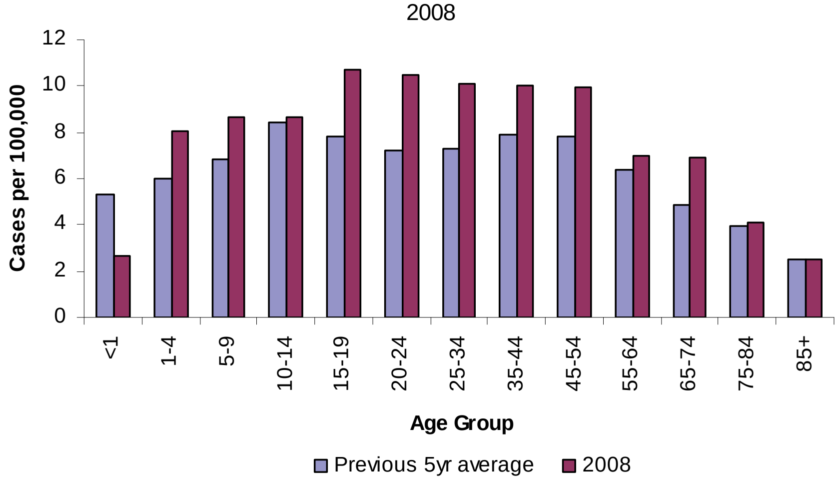


The annual incidence of cases for which PEP is recommended has increased since electronic reporting was initiated (Figure 1). In 2008, the incidence rate was up 26.04% over the previous 5-year average. This increase is thought to be largely due to the rabies vaccine shortage experienced throughout most of 2008. During much of this time, healthcare providers were required to contact local and state health officials on a case by case basis in order to obtain rabies post-exposure vaccines, which led to more cases being reported.

PEP is recommended year round in Florida, though the number of treatment incidents increases somewhat during the summer months (Figure 2). Treatment information was provided in 91% of cases. Of these reports, 86% of cases received at least one dose of PEP, 8% refused PEP, 5% were lost to follow-up, and 1% were determined not to need PEP after the animal tested negative or was well at the end of the observation period.

The average age of the victim for the 1,618 cases reported in 2008 was 36.5 years, with a range of <1 to 108 years of age. In 2008, the highest incidence was seen in individuals between 15 and 19 years of age, but incidence was similar from ages 15 to 54 (Figure 3). The incidence rate for males is approximately the same as that for females, but the incidence rate among white males is almost double that of non-white males.

Figure 3.
Rabies, Possible Exposure Incidence Rate by Age Group, Florida, 2008



The type of animal involved in the exposures was available for 97% of cases. Of these, 40% involved a dog, 27% a cat, 18% a raccoon, 9% a bat, 1% a fox, and the remaining 5% of exposures were other animals. Victims exposed to rabid or suspected rabid dogs were 55% male. Approximately 26% of all dog exposures occurred in children less than 15 years of age, and of these, 60% of exposures were in boys. Victims exposed to rabid or suspected rabid cats were 65% female and, although 35% of all exposures occurred in children under the age of 15, only 10% of all cat exposures occurred in that age group. Children less than 15 years of age were also involved in only 14% of all wild animal exposures. Exposure type was available for 54% of all reported cases. Of these, 80% of exposures involved bites, 6% involved scratches, and 14% involved saliva or other non-bite/non-scratch exposures. Among bite exposures, 54% had an exposure site listed. The most common exposure sites were the hand (49%), leg/foot (24%), and the arm (18%). Only 14% of the bites occurred above the neck. The majority of these injuries occurred among children under 10 years of age (54%) and involved a dog (75%).

Emergency department utilization and hospital discharge data are useful for demonstrating the magnitude of animal bites in general. Rates of hospitalization and emergency department visits related to dog bites among children far exceed rates among older age groups (Figures 4 and 5).

Prevention

Contact with wildlife and unfamiliar domestic animals should be limited. It is especially important that children be educated on appropriate interactions with animals. If bitten, it is important to wash the area thoroughly with soap and water, seek medical attention, and report the bite to the local county health department.

Figure 4.
Non-Fatal Dog Bite-Related Hospitalization Rates by Age, Florida Residents, 1999-2007

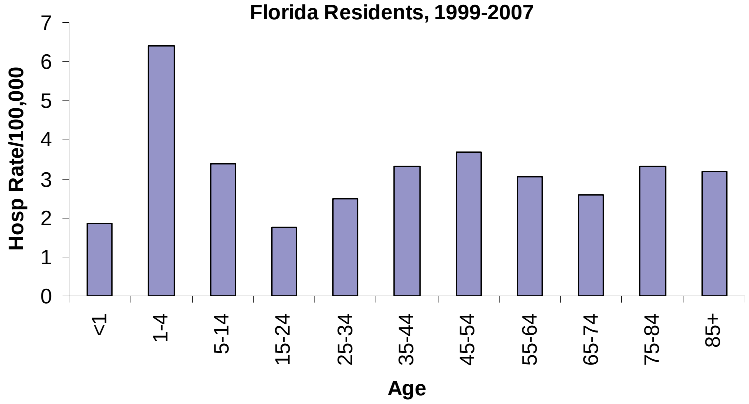
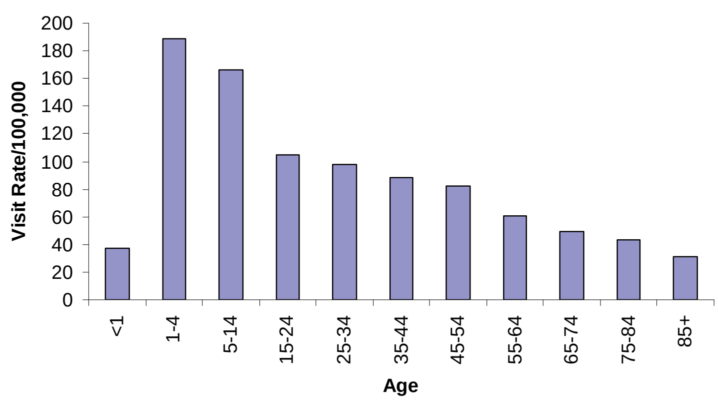
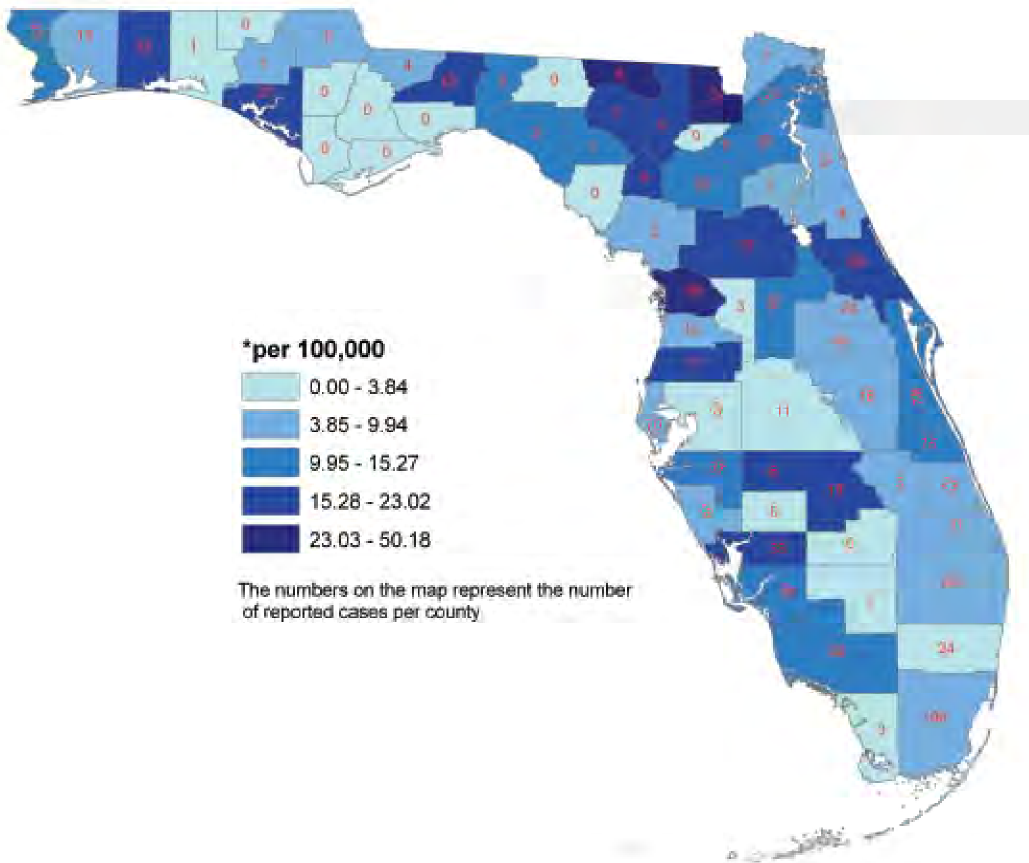


Figure 5.
Non-Fatal Dog Bite-Related Emergency Department Visit Rates by Age, Florida Residents, 2005-2007



Data Source: Hospital and Emergency Department Discharge Data, Agency for Health Care Administration

Rabies, Possible Exposure Incidence Rate* by County, Florida, 2008



Additional Resources

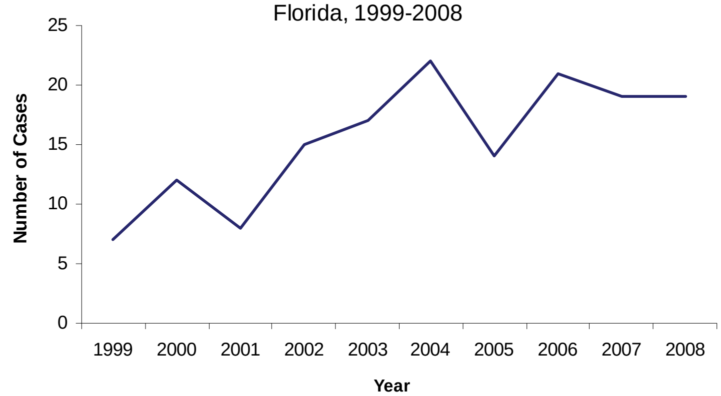
Additional information on animal bites and PEP can be found in the *Rabies Prevention and Control in Florida, 2008 Guidebook*, online at http://www.doh.state.fl.us/environment/community/arboviral/Zoonoses/Rabiesguide2008.pdf or http://www.doh.state.fl.us/environment/medicine/rabies/Documents/Rabiesguide2008.pdf.

Dog bite prevention and rabies information can also be found on the Department of Health website at www.MyFloridaEH.com and http://www.doh.state.fl.us/environment/community/rabies/rabies-index.html or http://www.doh.state.fl.us/environment/medicine/rabies/rabies-index.html.

Rocky Mountain Spotted Fever

Rocky Mountain Spotted Fever: Crude Data	
Number of Cases	19
2008 incidence rate per 100,000	0.10
% change from average 5-year (2003-2007) reported cases	2.15
Age (yrs)	
Mean	47.29
Median	47
Min-Max	12 - 86

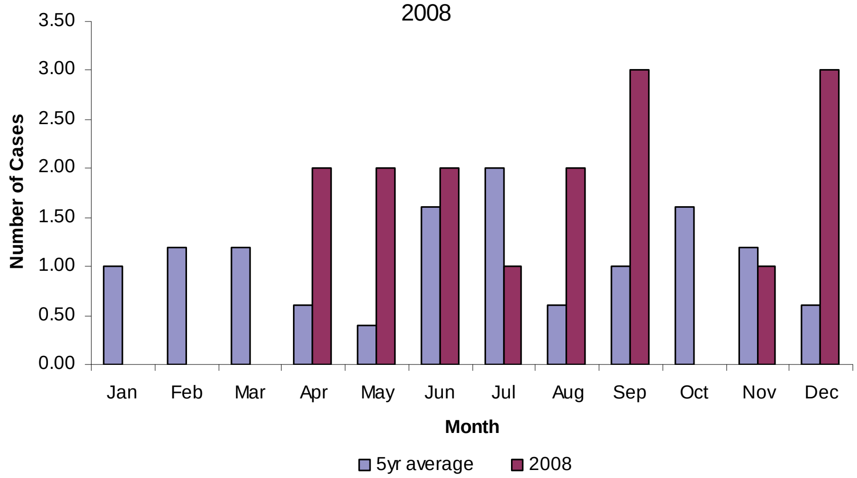
Figure 1.
Rocky Mountain Spotted Fever Cases by Year Reported, Florida, 1999-2008



Disease Abstract

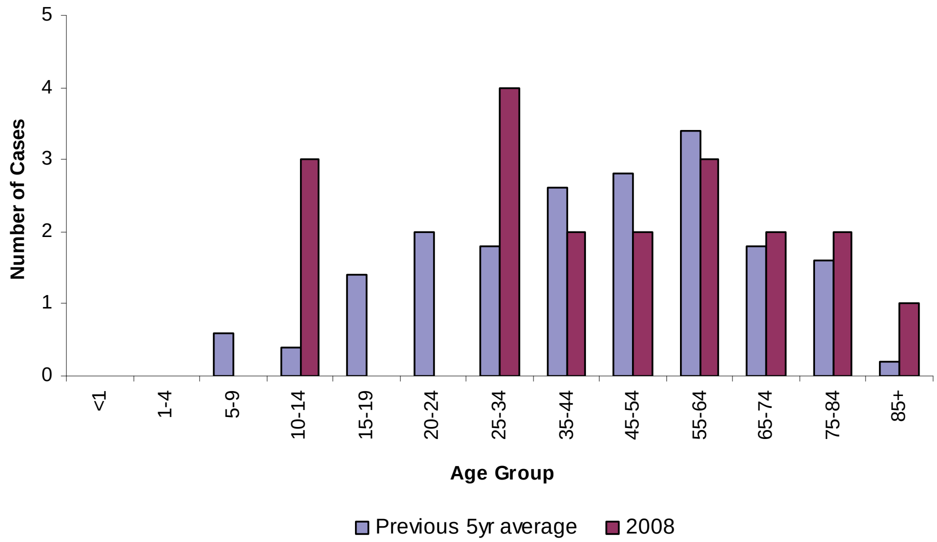
The number of Rocky Mountain spotted fever (RMSF) cases reported annually has increased markedly since 1999 (Figure 1). The disease tends to affect adults more than other age groups, although in 2008, there were more cases reported in those age 10-14 than the previous 5-year average (Figure 3). The elderly, males, those of black race, those with glucose-6-phosphate-dehydrogenase (G6PD) deficiency, and those with a history of alcohol abuse are at greatest risk for severe disease. Approximately 12% of black males in the U.S. are G6PD deficient.

Figure 2.
Rocky Mountain Spotted Fever Cases by Month of Onset, Florida, 2008



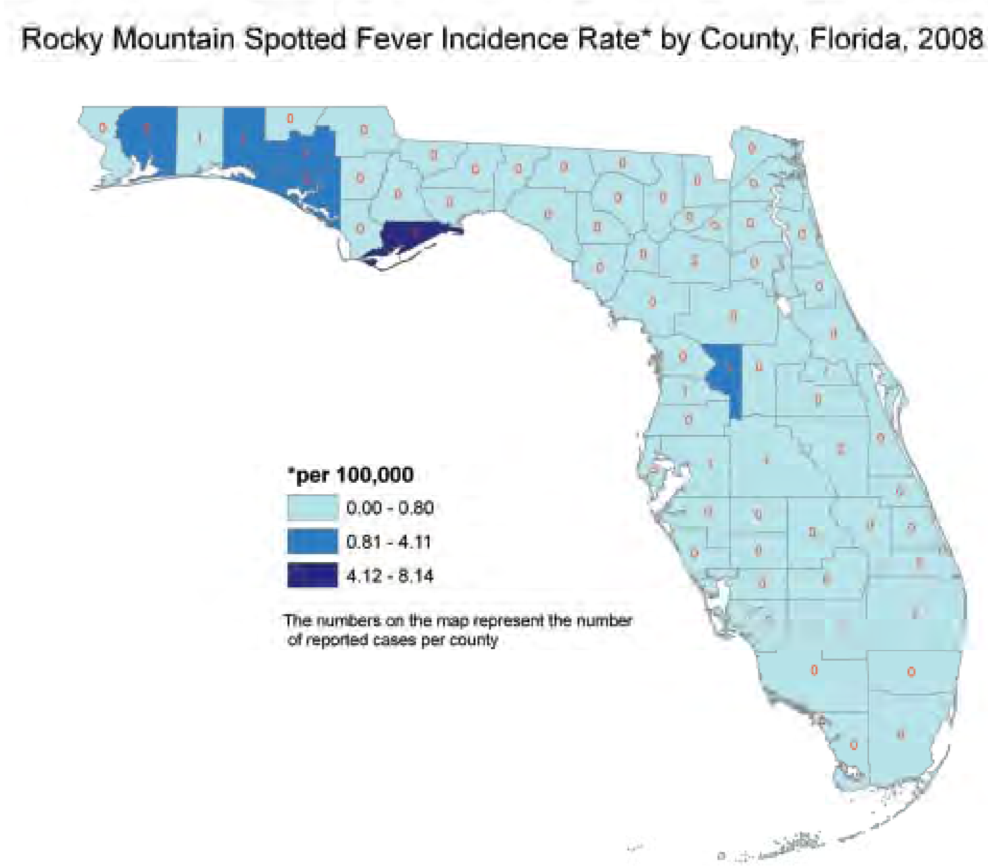
In Florida, cases of RMSF are reported year-round, though peak transmission occurs during the summer months (Figure 2). Of the 19 cases reported in 2008, 13 (68.4%) acquired the disease in Florida, five (26%) acquired the disease in another U.S. state; travel history for the remaining case is unknown. Most cases were reported from the Panhandle and central areas of the state. Fifteen patients (83%) in 2008 were over 30 years old, with the highest proportion in those over 60. Males accounted for 11 cases (61%). No deaths were reported in 2008, but at least six patients (32%) were hospitalized. The national case fatality rate for treated cases is approximately 5% and is up to 20% in untreated cases. Antibodies for other rickettsial species, such as *Rickettsia parkeri* and *Rickettsia amblyommii,* cross-react with tests for the RMSF agent, *Rickettsia rickettsii*, which may explain changes in national disease incidence and geographic distribution in recent years. The American dog tick, *Dermacentor variabilis*, is the principal RMSF vector in Florida, the primary vector for *R. parkeri* is the Gulf Coast Tick, *Amblyomma maculatum,* and the primary vector for *R. amblyomma* is believed to be the Lone Star Tick, *Amblyomma americanum*. Eschars at the site of the tick bite are associated with *R. parkeri* infections, but uncommonly reported in cases of RMSF.

Figure 3.
Rocky Mountain Spotted Fever Cases by Age Group, Florida, 2008



Prevention

Prevention of tick bites is the best way to avoid disease. Wear light-colored clothing so that ticks crawling on clothing are visible. Tuck pants legs into socks so that ticks cannot crawl inside clothing. Apply repellent to discourage tick attachment. Repellents containing permethrin can be sprayed on boots and clothing, and will last for several days. Repellents containing DEET can be applied to the skin, but will last only a few hours before reapplication is necessary. Search the body for ticks frequently when spending time in potentially tick-infested areas. If a tick is found, it should be removed as soon as possible. Using fine tweezers or a tissue to protect fingers, grasp the tick close to the skin and gently pull straight out without twisting. Do not use bare fingers to crush ticks. Wash hands following tick removal. Controlling tick populations in the yard and on pets can also reduce the risk of disease transmission.



References

David L. Heymann (ed.), *Control of Communicable Diseases Manual*, 19th ed., American Public Health Association Press, Washington, District of Columbia, 2008.

Additional Resources

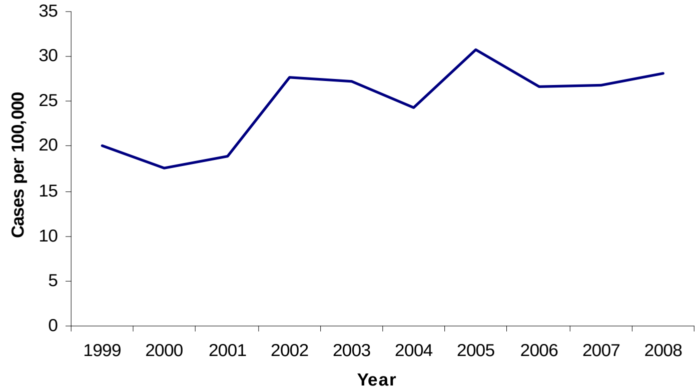
Disease information is available from the Centers for Disease Control and Prevention (CDC) at http://www.cdc.gov/ncidod/dvrd/rmsf/index.htm.

Disease information is also available from the Florida Department of Health at http://www.doh.state.fl.us/Environment/medicine/arboviral/Tick_Borne_Diseases/Tick_Index.htm.

Salmonellosis

Salmonellosis: Crude Data	
Number of Cases	5,312
2008 incidence rate per 100,000	28.11
% change from average 5 year (2003-2007) incidence rate	3.45
Age (yrs)	
Mean	23.15
Median	8
Min-Max	<1 - 106

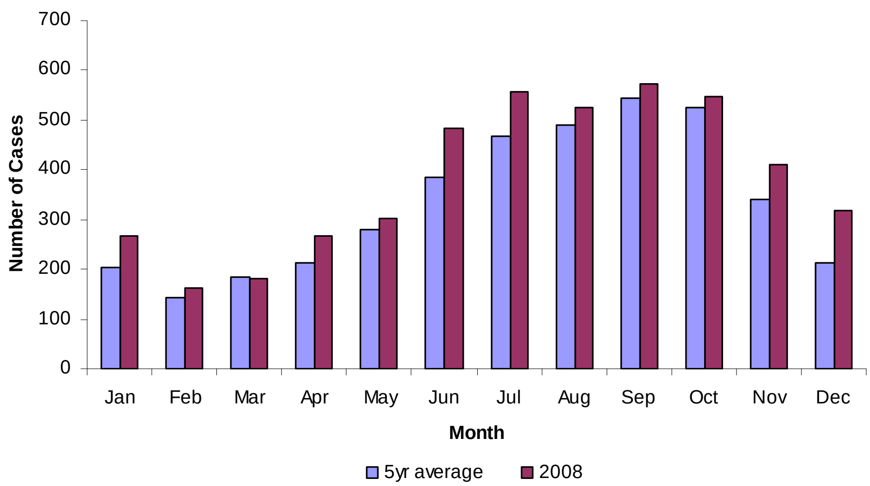
Figure 1.
Salmonellosis Incidence Rate by Year Reported, Florida, 1999-2008



Abstract

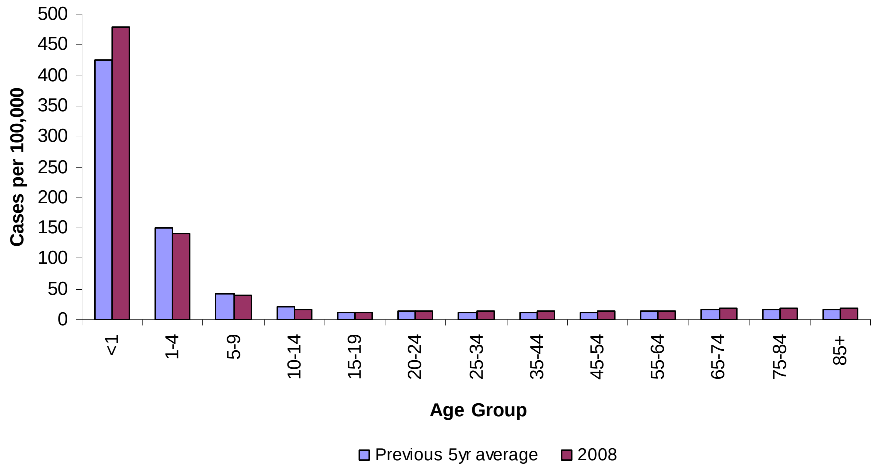
The incidence rate for salmonellosis has increased gradually over the last ten years (Figure 1). In 2008, the incidence was 28.11 cases/100,000, a decrease from the 2005 peak of 30.8 cases/100,000. A total of 5,312 cases were reported in 2008, of which 95.73% were classified as confirmed. The number of cases reported increases in the summer and early fall. In 2008, the number of cases exceeded the previous 5-year average in all months except March which was only slightly lower (Figure 2). Overall, 7.7% of the salmonellosis cases were classified as outbreak-related in 2008.

Figure 2.
Salmonellosis Cases by Month of Onset, Florida, 2008



The highest incidence rates continue to occur among infants <1 year old and children 1-4 years old. In 2008, the incidence rates were slightly higher than the previous 5-year average in those <1 and the incidence rates were similar in the others (Figure 3). Males and females have almost identical incidence rates (28.10 and 28.05 per 100,000, respectively). The incidence rate among non-white females (11.06 per 100,000) is less than half of that of any other gender-race group.

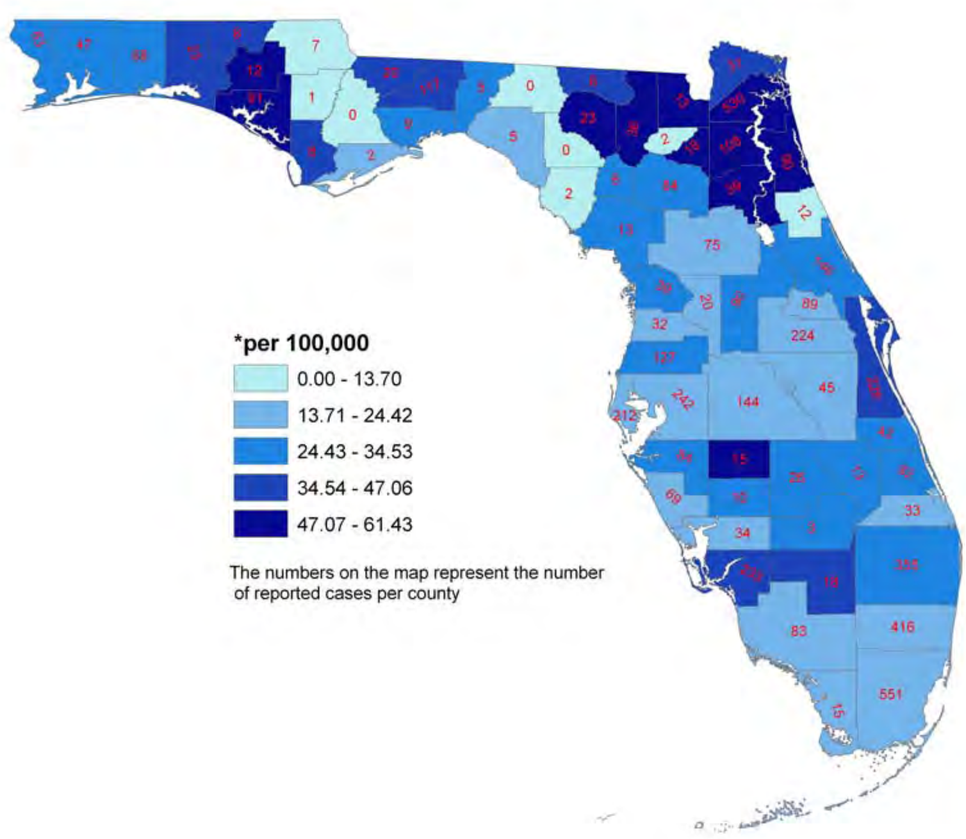
Figure 3.
Salmonellosis Incidence Rate by Age Group, Florida, 2008



Salmonellosis was reported in 64 of the 67 counties in Florida. Rates vary across the state, but appear to be higher in the western panhandle and the northeastern portion of the state.

Prevention
To reduce the likelihood of contracting salmonellosis, cook all meat products and eggs thoroughly, particularly poultry. Avoid cross-contamination by making sure utensils, counter tops, cutting boards, and sponges are cleaned or do not come in contact with raw poultry or other meat. Wash hands thoroughly before, during, and after food preparation. Do not allow the fluids from raw poultry or meat to drip onto other foods. Consume only pasteurized milk, milk products, or juices. Additionally, it is important to wash hands after coming into contact with any animals or their environment.

Salmonellosis Incidence Rate* by County, Florida, 2008



References

David L. Heymann (ed.), *Control of Communicable Diseases Manual*, 18th ed., American Public Health Association Press, Washington, District of Columbia, 2004.

L. Pickering (ed.), *2006 Red Book: Report of the Committee on Infectious Diseases*, 27th ed., American Academy of Pediatrics, Elk Grove Village, IL, 2006, pp. 992.

Florida Department of Health -*Guidelines for Control of Outbreaks of Enteric Disease in Child Care Settings* http://www.doh.state.fl.us/disease_ctrl/epi/surv/enteric.pdf

Additional Resources

Disease information is available from the Centers for Disease Control and Prevention (CDC) at http://www.cdc.gov/salmonella/

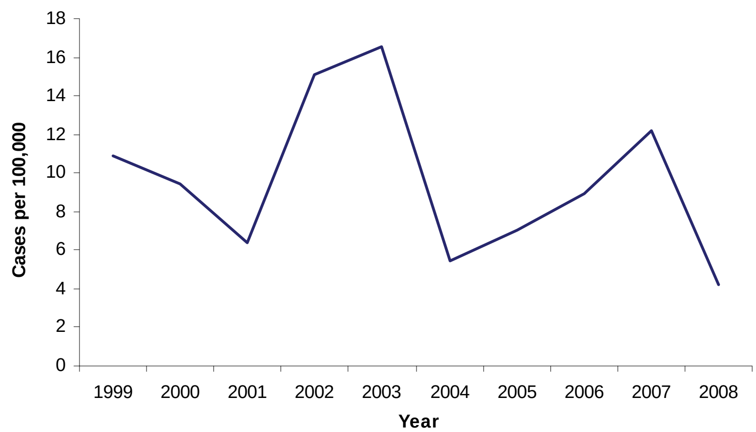
Additional information is available from the U.S Food and Drug Administration – Bad Bug book at http://www.cfsan.fda.gov/~mow/chap1.html.

R. Baker, et al., "Outbreak of *Salmonella* Serotype Javiana Infections-Orlando, Florida, June 2002," *Morbidity and Mortality Weekly Report*, Vol. 51, No. MM31, p. 683.

Shigellosis

Shigellosis: Crude Data	
Number of Cases	801
2008 incidence rate per 100,000	4.24
% change from average 5 year (2003-2007) incidence rate	-57.69
Age (yrs)	
Mean	16.71
Median	8
Min-Max	<1 - 88

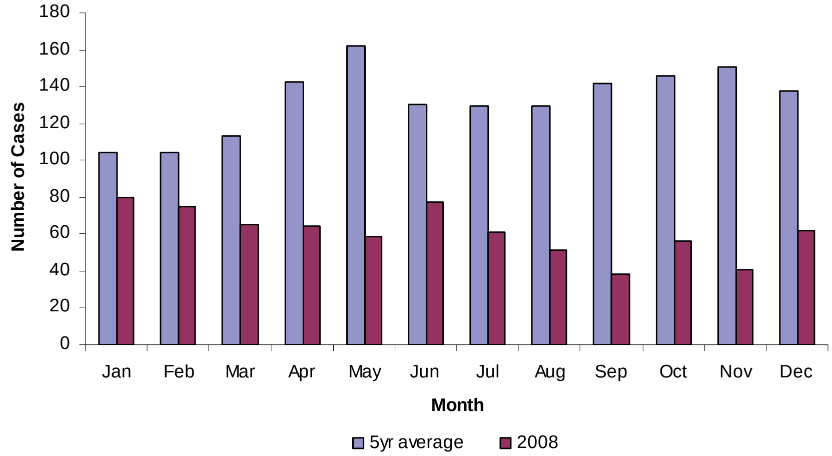
Figure 1.
Shigellosis Incidence Rate by Year Reported, Florida, 1999-2008



Disease Abstract

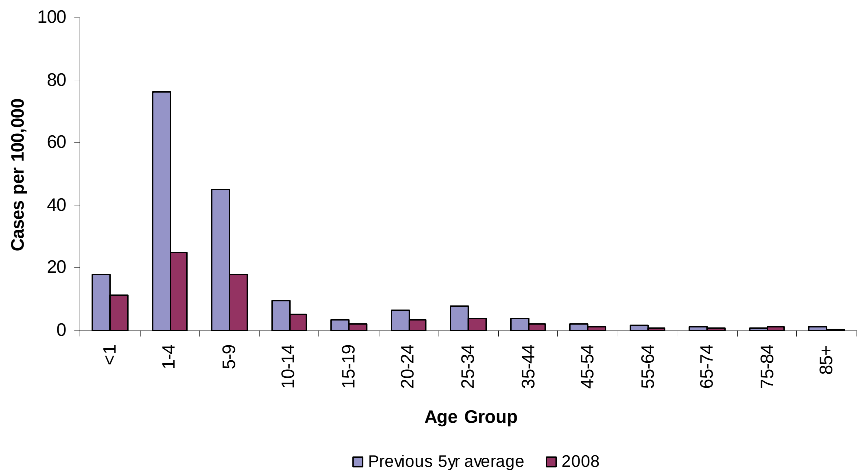
The incidence rate for shigellosis has varied over the last ten years (Figure 1). Periodic community outbreaks involving childcare centers account for most of the observed variability. Over 20% of the cases reported in 2008 were in children who attend daycare or staff who work at affected daycares. This number does not take into account the proportion of cases that are secondary to the initial daycare-associated case. In 2008, there was a 57.69% decrease in comparison to the average incidence from 2003-2007. A total of 801 cases were reported in 2008 (2007= 2,288 cases), of which 79.53% were classified as confirmed. Historically, the number of cases reported tends to increase in late summer and the fall months. However, in 2008, the number of cases was highest at the beginning of the year, in January and February, and steadily decreased through the year (Figure 2). Overall, 32.21% of the shigellosis cases were classified as outbreak-related and 19.23% of the shigellosis cases were daycare attendees.

Figure 2.
Shigellosis Cases by Month of Onset, Florida, 2008



The highest incidence rates continue to occur among children aged 1 to 4 years old. In 2008, the incidence rates were similar in trend to the 5-year average but were at much lower levels (Figure 3). Incidence rates were higher among females than males (4.32 and 4.16 per 100,000 respectively) and higher in non-whites than whites, with the highest incidence being among non-white males (7.97 per 100,000).

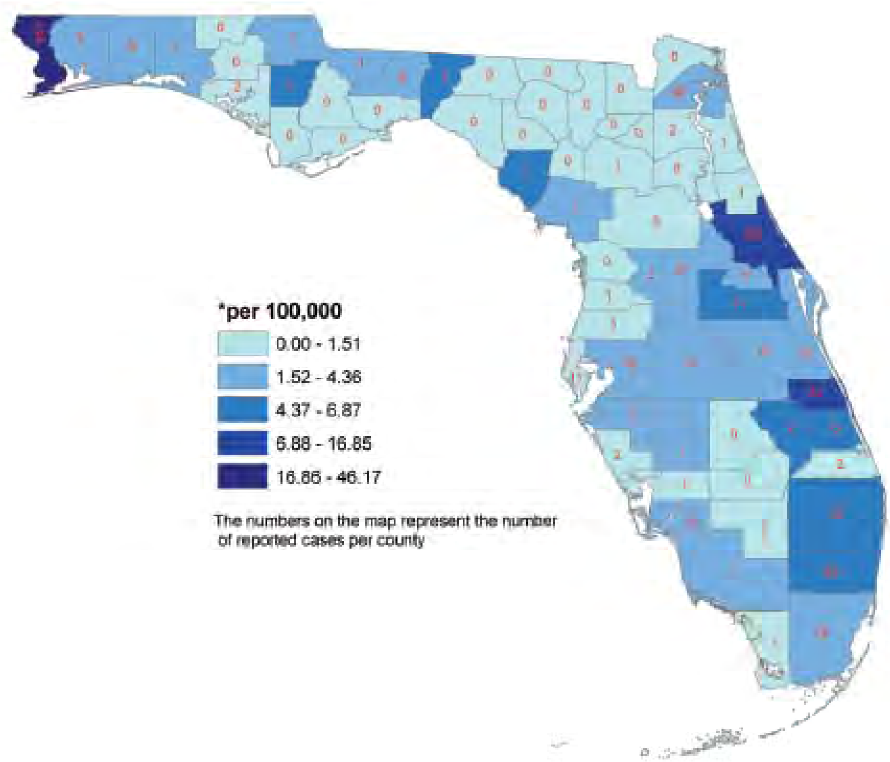
Figure 3.
Shigellosis Incidence Rate by Age Group, Florida, 2008



Shigellosis was reported in 45 of the 67 counties in Florida. There were no distinct geographic patterns in the distribution of shigellosis cases throughout the state.

Prevention
To reduce the likelihood of contracting shigellosis, it is important to practice good hand hygiene. Outbreaks in daycare centers are common and control may be difficult. The Department of Health has published outbreak control measures for childcare settings (see references).

Shigellosis Incidence Rate* by County, Florida, 2008



References

David L. Heymann (ed.), *Control of Communicable Diseases Manual*, 18th ed., American Public Health Association Press, Washington, District of Columbia, 2004.

L. Pickering (ed.), *2006 Red Book: Report of the Committee on Infectious Diseases*, 27th ed., American Academy of Pediatrics, Elk Grove Village, IL, 2006, pp. 992.

Florida Department of Health -*Guidelines for Control of Outbreaks of Enteric Disease in Child Care Settings* http://www.doh.state.fl.us/disease_ctrl/epi/surv/enteric.pdf.

Additional Resources

Disease information is available from the Centers for Disease Control and Prevention (CDC) at http://www.cdc.gov/ncidod/dbmd/diseaseinfo/shigellosis_g.htm.

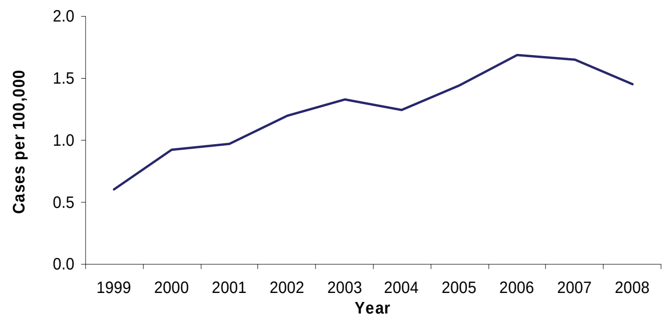
Additional information is available from the U.S Food and Drug Administration – Bad Bug book at http://www.cfsan.fda.gov/~mow/chap19.html.

Centers for Disease Control and Prevention, "Outbreak of Gastroenteritis Associated With an Interactive Water Fountain at a Beachside Park - Florida, 1999," *Morbidity and Mortality Weekly Report*, Vol. 49, No. 25, 2000, pp. 565-8.

Streptococcal Disease, Invasive, Group A

Streptococcal Disease, Invasive Group A: Crude Data	
Number of Cases	275
2008 incidence rate per 100,000	1.46
% change from average 5-year (2003-2007) incidence rate	-1.48
Age (yrs) Mean	52.29
Median	57
Min-Max	<1 - 100

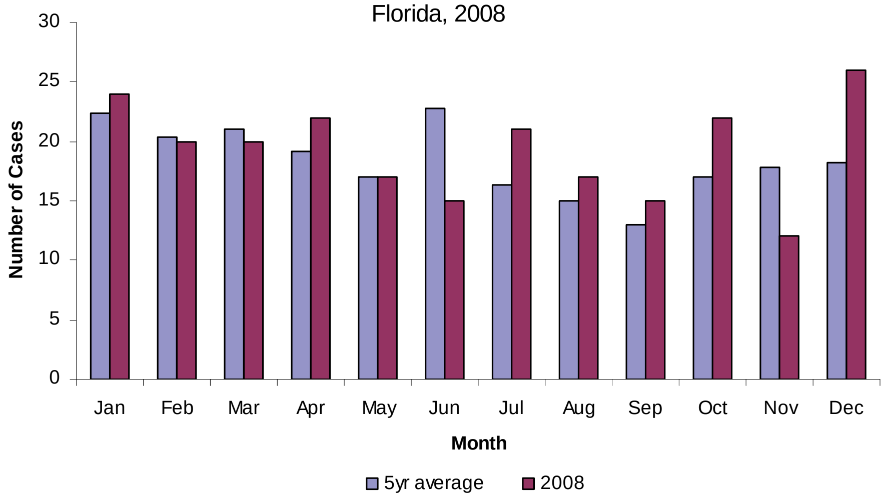
Figure 1.
Streptococcal Disease, Invasive Group A Incidence Rate by Year Reported, Florida, 1999-2008



Disease Abstract

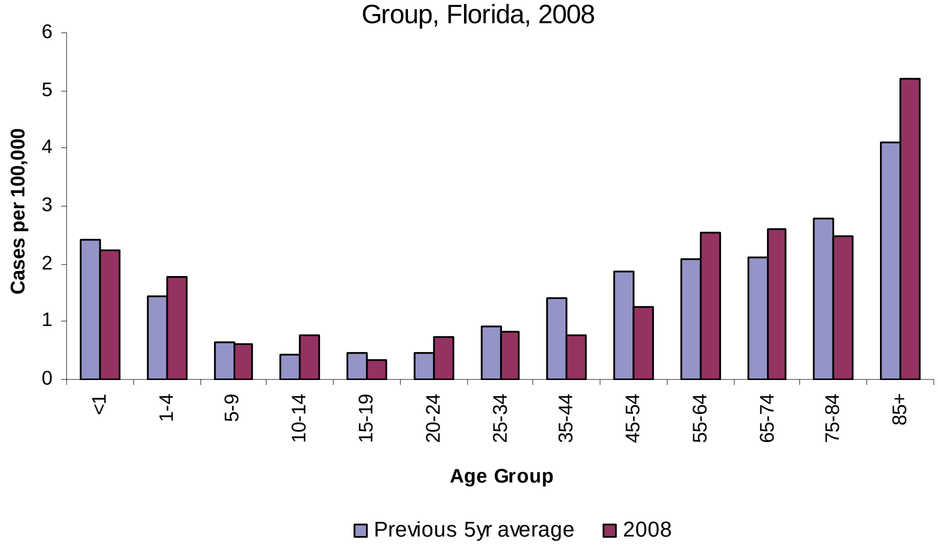
The incidence rate for reported invasive group A streptococcal disease in Florida has gradually increased over the past 10 years, with a more than four-fold cumulative increase since 1997 (Figure 1). In 2008, there was a 1.48% decrease compared to the average incidence for 2003-2007 (Table 1). A total of 275 cases were reported in 2008, of which 100% were classified as confirmed. Cases occur throughout all months of the year with no clear seasonal pattern. Compared to the previous 5-year average, the number of cases reported in 2008 was higher in all months except for February, March, June, and November, with the greatest number occurring in January, October, and December (Figure 2). No cases were reported as outbreak-associated in 2008.

Figure 2.
Streptococcal Disease, Invasive Group A, Cases by Month of Onset, Florida, 2008



The highest incidence rate for 2008 occurred in those 85 and older, which is in line with historical trends (Figure 3). In 2008, incidence increased in about half of the age groups, most notably those over 85. Males continue to have a higher incidence than females (1.70 and 1.22 per 100,000 respectively). In 2007, the incidence rate for white males surpassed that for non-white males.

Figure 3.
Streptococcal Disease, Invasive Group A Incidence Rate by Age Group, Florida, 2008

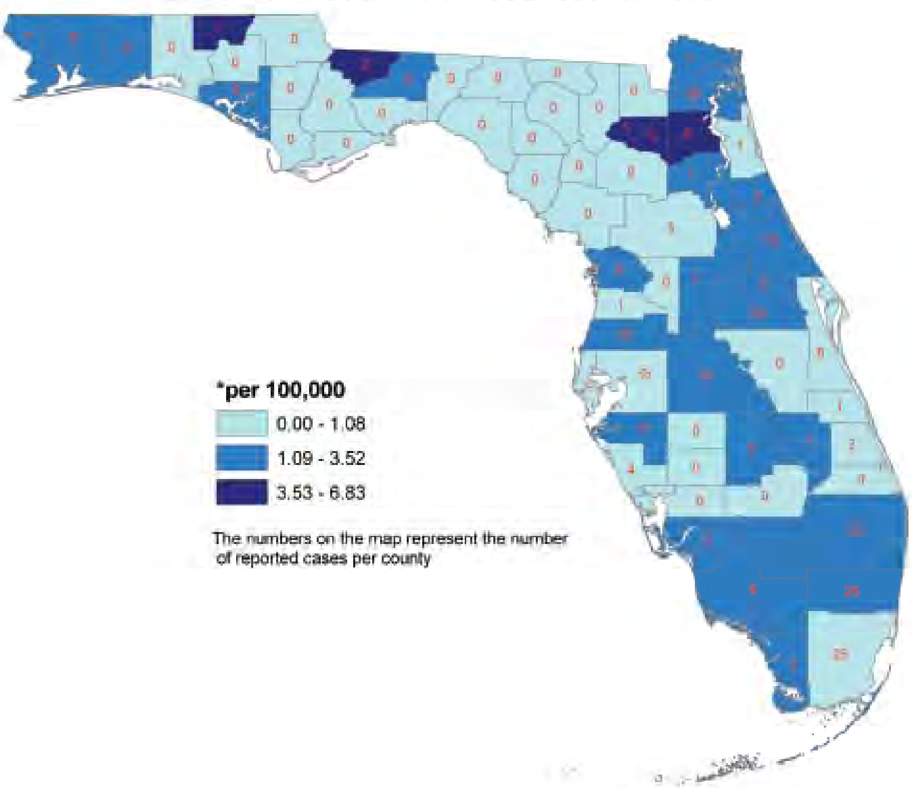


Invasive group A streptococcal disease cases were reported in 41 of the 67 counties in Florida. The five counties reporting the highest number of cases were primarily in the central and southern part of the state with relatively few cases occurring in the panhandle region. However, the counties with the highest rates of disease were in the northern part of the state.

Prevention

Prevention is through education about modes of transmission, prompt and effective treatment of infections, and appropriate drainage and secretion precautions for infection sites and wound care.

Streptococcal Disease Invasive Group A
Incidence Rate* by County, Florida, 2008



References

David L. Heymann (ed.), *Control of Communicable Diseases Manual*, 18th ed., American Public Health Association Press, Washington, District of Columbia, 2004.

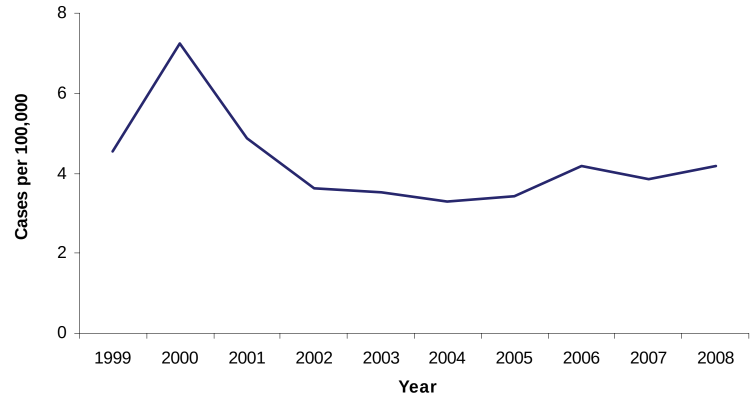
Additional Resources

Disease information is available from the Centers for Disease Control and Prevention (CDC) at http://www.cdc.gov/ncidod/dbmd/diseaseinfo/groupastreptococcal_g.htm

Streptococcus pneumoniae, Invasive Disease, Drug-Resistant

***Streptococcus pneumoniae*, Invasive Disease, Drug-Resistant: Crude Data**	
Number of Cases	792
2008 incidence rate per 100,000	4.19
% change from average 5 year (2003-2007) incidence rate	14.27
Age (yrs)	
Mean	45.36
Median	51
Min-Max	<1 - 102

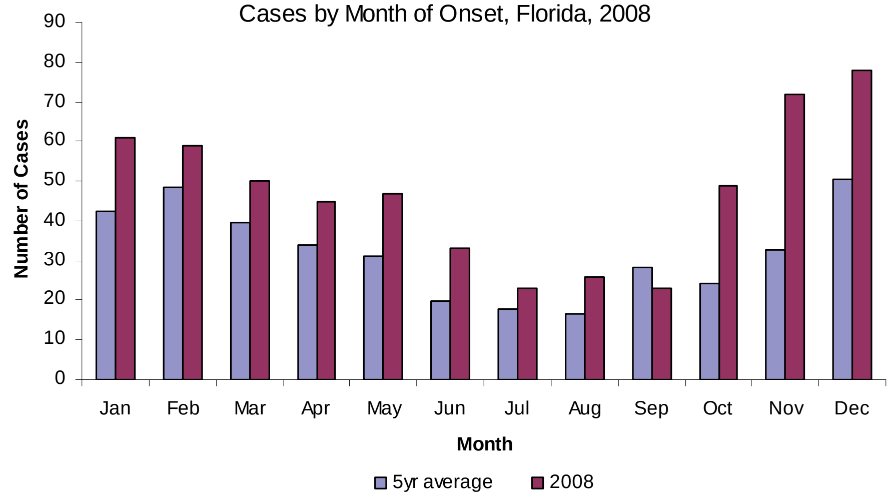
Figure 1.
Streptococcus pneumoniae Invasive Disease, Drug-Resistant
Incidence Rate by Year Reported, Florida, 1999-2008



Disease Abstract

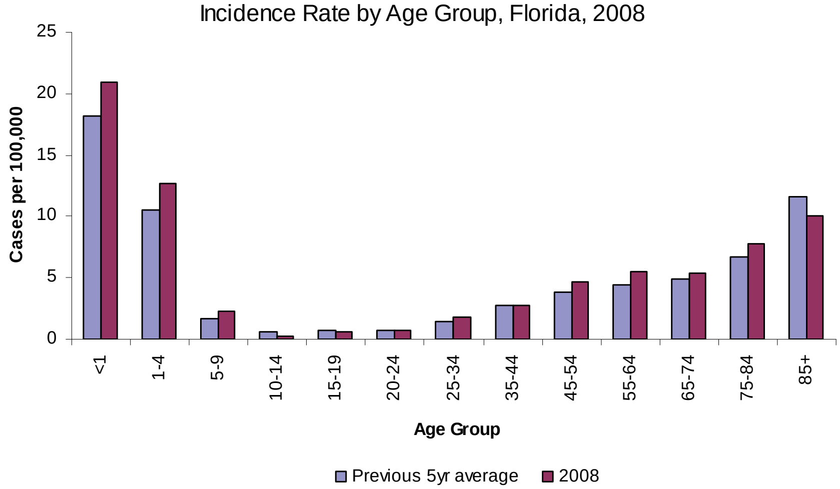
Drug-resistant *S. pneumoniae* (DRSP) invasive disease, for reporting purposes, includes cultures obtained from a normally sterile site, such as blood or CSF, which are either intermediate resistant or fully resistant to one or more commonly used antibiotics. The incidence rate for DRSP peaked in 2000 and gradually declined until 2005 when it started to increase again (Figure 1). There was an increase from 3.86 cases/100,000 in 2007 to 4.19 cases/100,000 in 2008.

Figure 2.
Streptococcus pneumoniae, Invasive Disease, Drug-Resistant
Cases by Month of Onset, Florida, 2008



The highest incidence rates continue to occur among infants <1 year old, children 1-4 years, and those over 85. In 2008, the incidence rates were higher than the previous 5-year average in most age groups, except those over 85 (Figure 3). Males have a slightly higher incidence than females (4.25 per 100,000 and 4.14 per 100,000, respectively). The highest incidence is among non-white males (6.96 per 100,000) and lowest among non-white females (0.52 per 100,000).

Figure 3.
Streptococcus pneumoniae , Invasive Disease, Drug-Resistant
Incidence Rate by Age Group, Florida, 2008



The data from both the drug-resistant and drug-sensitive *S. pneumoniae* isolates reported were used to calculate resistance rates of common antibiotics for 2008 (Figure 4 and Table 1). A total of 1,483 cases had one or more antibiograms, and the earliest pattern for each case was used in these calculations. The sensitivity rate varies by the class of antibiotic. Erythromycin and penicillin had the greatest percentage of intermediate and resistant isolates (47.0% and 40.8% respectively).

Please see "Section 4: Summary of Antimicrobial Resistance Surveillance" for additional information on antimicrobial resistance surveillance in Florida including MeningNet, an enhanced meningococcal surveillance system used to monitor antimicrobial susceptibility.

Figure 4.
***Streptococcus pneumoniae*, Invasive Disease,**
Antibiotic Resistance, Florida, 2008

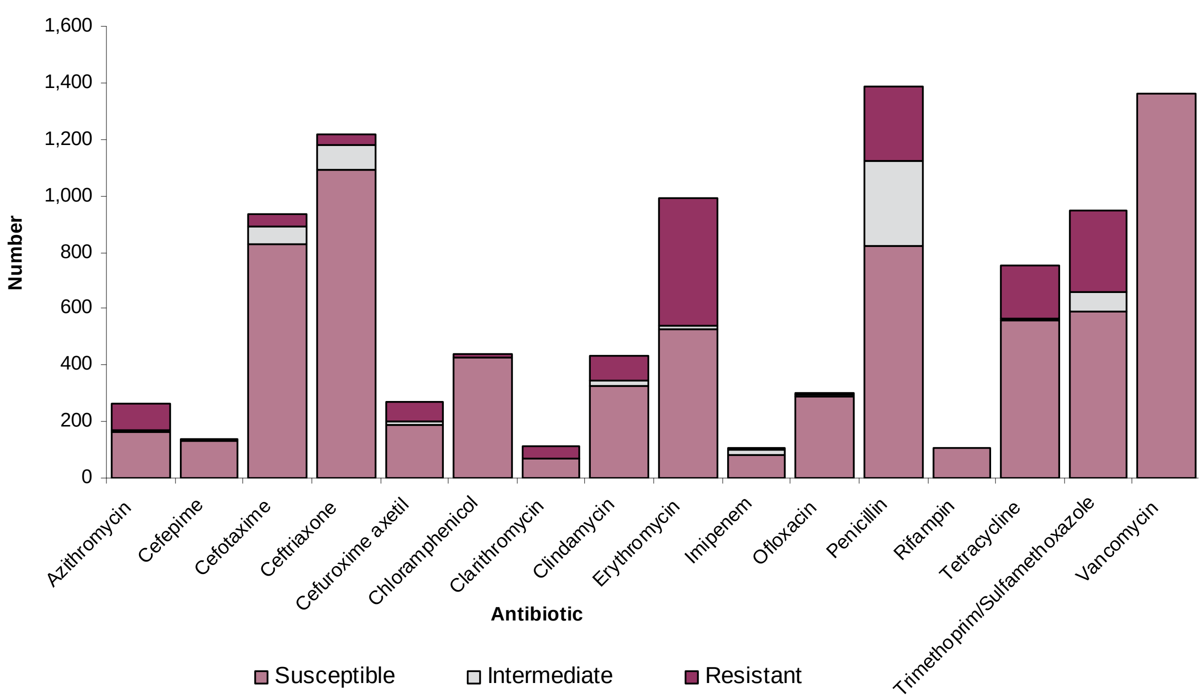
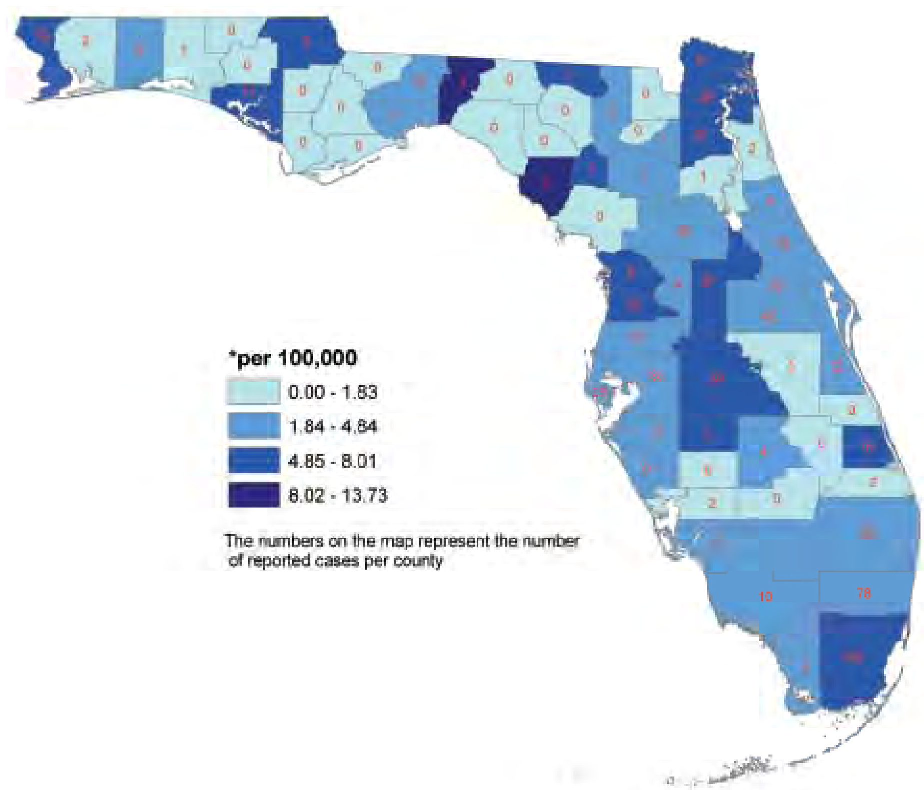


Table1. *Streptococcus pneumoniae*, Invasive Disease, Antibiotic Resistance, Florida 2008

Antibiotic name	Number of Cases Tested	Susceptible	Intermediate	Resistant
Azithromycin	265	61.9%	3.0%	35.1%
Cefepime	140	93.6%	6.4%	0.0%
Cefotaxime	935	88.6%	6.5%	4.9%
Ceftriaxone	1220	89.7%	7.0%	3.3%
Cefuroxime axetil	272	70.2%	4.0%	25.7%
Chloramphenicol	441	96.4%	0.2%	3.4%
Clarithromycin	110	60.9%	4.5%	34.5%
Clindamycin	434	75.1%	3.9%	21.0%
Erythromycin	991	53.0%	1.4%	45.6%
Imipenem	104	78.8%	18.3%	2.9%
Ofloxacin	299	96.3%	2.7%	1.0%
Penicillin	1384	59.2%	22.1%	18.7%
Rifampin	107	99.1%	0.0%	0.9%
Tetracycline	753	74.4%	0.7%	25.0%
Trimethoprim/Sulfamethoxazole	947	62.3%	7.5%	30.1%
Vancomycin	1364	99.9%	0.0%	0.1%

Drug-resistant *S. pneumoniae* was reported in 49 of the 67 counties in Florida.

Streptococcus pneumoniae, Invasive Disease, Drug-Resistant, Incidence Rate* by County, Florida, 2008



Prevention

The most effective way of preventing pneumococcal infections, including DRSP infections, is through vaccination. Currently, there are two vaccines available. A conjugate vaccine is recommended for all children <24 months, and children age 24–59 months with a high-risk medical condition. The other pneumococcal polysaccharide vaccine should be administered routinely to all adults over 65 years old. Vaccine is also indicated for people >2 with a normal immune system who have chronic illnesses. Additionally, it is important to practice good hand hygiene, to take antibiotics only when necessary, and to finish the entire course of treatment.

References

David L. Heymann, *Control of Communicable Diseases Manual*, 18th ed., American Public Health Association Press, Washington, District of Columbia, 2004.

American Academy of Pediatrics, *Red Book 2003: Report of the Committee on Infectious Diseases*, 26th ed., American Academy of Pediatrics Press, Elk Grove Village, Illinois, 2003.

William Atkinson (ed.) et al., *Epidemiology and Prevention of Vaccine-Preventable Diseases*, 10th ed., Public Health Foundation, Washington, District of Columbia, 2007.

Michael T. Drennon, “Drug Resistant Patterns of Invasive *Streptococcus pneumoniae* Infections in the State of Florida in 2003,” *Master’s Thesis*, University of South Florida, Tampa, 2006.

The following reports are available on the Department of Health web site: 1999 *Streptococcus pneumoniae* Surveillance Report, 2000 *Streptococcus pneumoniae* Surveillance Report, and 1997-1999, Surveillance of *SP* in Central FL, at http://www.doh.state.fl.us/disease_ctrl/epi/topics/popups/anti_res.htm.

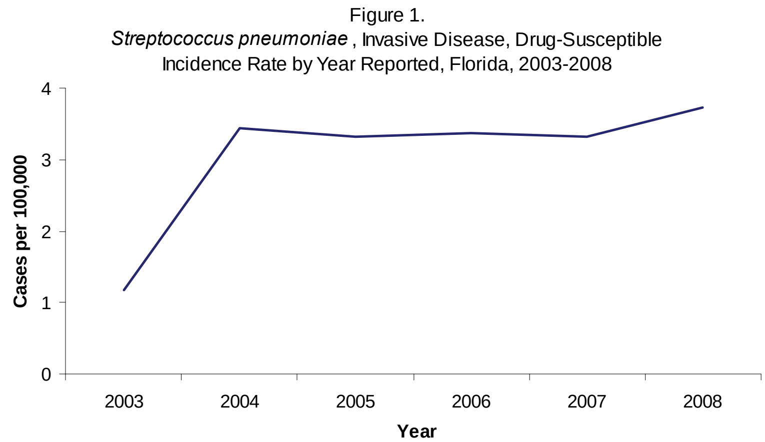
Additional Resources

Disease information is available from the Centers for Disease Control and Prevention (CDC) at: http://www.cdc.gov//ncidod/dbmd/diseaseinfo/drugresisstreppneum_t.htm.

Centers for Disease Control and Prevention, “Preventing pneumococcal disease among infants and young children: recommendations of the Advisory Committee on Immunization Practices (ACIP),” *Morbidity and Mortality Weekly Report*, Vol. 49, No. RR-9, 2000, pp. 1-35.

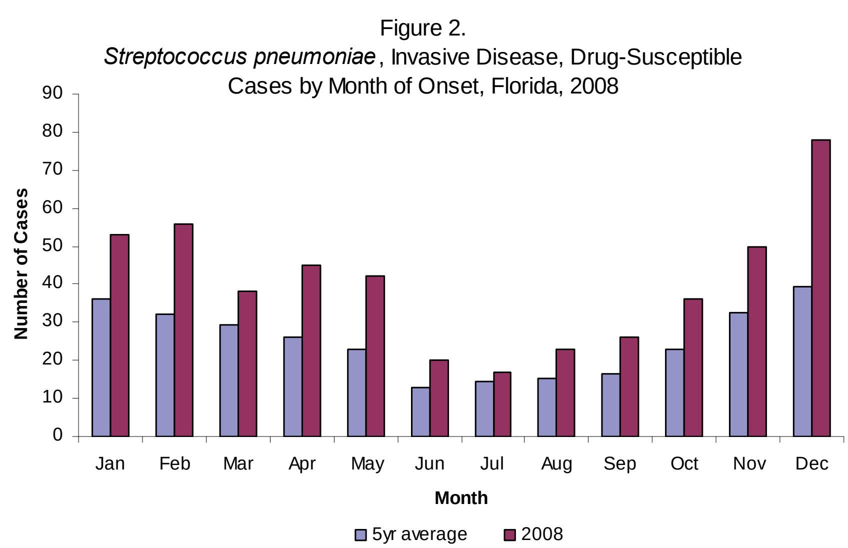
Streptococcus pneumoniae, Invasive Disease, Drug-Susceptible

***Streptococcus pneumoniae*, Invasive Disease, Drug-Susceptible: Crude Data**	
Number of Cases	704
2008 incidence rate per 100,000	3.73
% change from average 5-year (2003-2007) incidence rate	26.63
Age (yrs)	
Mean	51.32
Median	53.5
Min-Max	<1 - 97



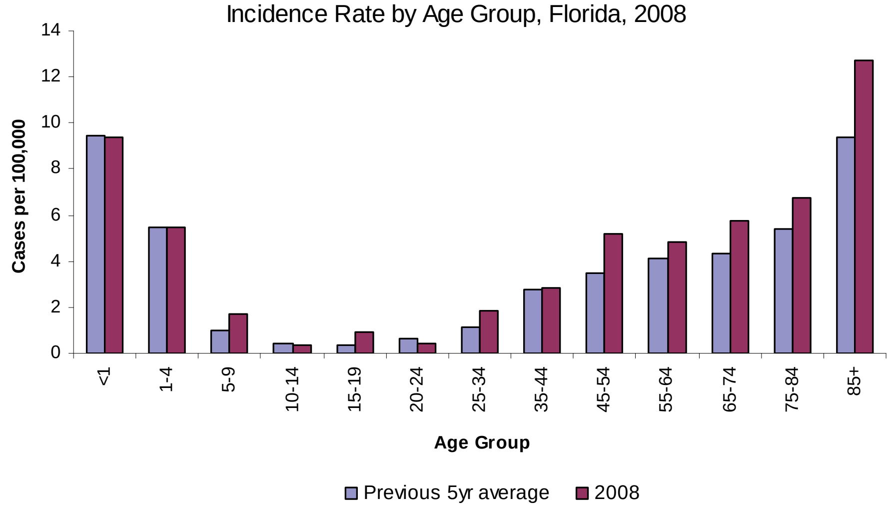
Disease Abstract

Drug-sensitive *Streptococcus pneumoniae* (DSSP) invasive disease, for reporting purposes, includes cultures obtained from a normally sterile site, such as blood or CSF, that are sensitive to all of the commonly used antibiotics. Data on drug-susceptible *S. pneumoniae* has been available for the last six years. Since the second year of reporting, in 2004, the incidence of DSSP has consistently been about 3.43 per 100,000. A total of 704 cases were reported in 2008. This is the highest reported incidence in the six years that the disease has been reportable. The number of cases reported tends to increase in the winter months. In 2008, the number of cases exceeded the previous 5-year average in all months (Figure 2).



The highest incidence rates continue to occur among infants <1, children aged 1-4 years, and those over 85. In 2008, the incidence rates were higher than or the same as the previous 5-year average in all age groups except those 10-14 and 20-24, in which the rates decreased (Figure 3). Males continue to have a slightly higher incidence than females (3.79 and 3.66 per 100,000, respectively). The highest incidence is among non-white males (4.32 per 100,000) and lowest among non-white females (0.47 per 100,000).

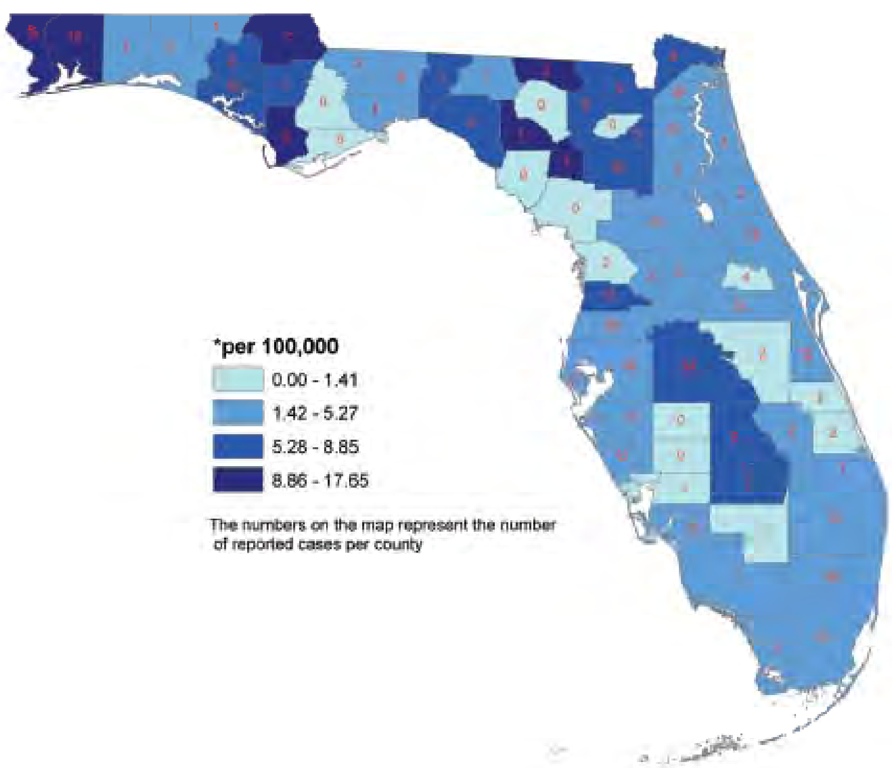
Figure 3.
Streptococcus pneumoniae, Invasive Disease, Drug-Susceptible
Incidence Rate by Age Group, Florida, 2008



DSSP was reported in 58 of the 67 counties in Florida.

Prevention
The most effective way of preventing pneumococcal infections including DRSP is through vaccination. Currently, there are two vaccines available. A conjugate vaccine is recommended for all children <24 months of age, and children age 24–59 months with a high-risk medical condition. The other pneumococcal polysaccharide vaccine should be administered routinely to all adults 65+ years. Vaccine is also indicated for persons >2 with a normal immune system with chronic illnesses. Additionally, it is important to practice good hand hygiene, take antibiotics only when necessary, and finish the entire course of treatment.

Streptococcus pneumoniae Invasive Disease, Drug-Susceptible,
Incidence Rate* by County, Florida, 2008



References

David L. Heymann, *Control of Communicable Diseases Manual*, 18th ed., American Public Health Association Press, Washington, District of Columbia, 2004.

American Academy of Pediatrics, *Red Book 2003: Report of the Committee on Infectious Diseases*, 26th ed., American Academy of Pediatrics Press, Elk Grove Village, Illinois, 2003.

William Atkinson (ed.) et al., *Epidemiology and Prevention of Vaccine-Preventable Diseases*, 10th ed., Public Health Foundation, Washington, District of Columbia, 2007.

Michael T. Drennon, “Drug Resistant Patterns of Invasive *Streptococcus pneumoniae* Infections in the State of Florida in 2003,” *Master’s Thesis*, University of South Florida, Tampa, 2006.

The following reports are available on the Department of Health web site: 1999 *Streptococcus pneumoniae* Surveillance Report, 2000 *Streptococcus pneumoniae* Surveillance Report, 1997-1999 Surveillance of *SP* in Central FL, at http://www.doh.state.fl.us/disease_ctrl/epi/topics/popups/anti_res.htm

Additional Resources

Disease information is available from the Centers for Disease Control and Prevention (CDC) at: http://www.cdc.gov//ncidod/dbmd/diseaseinfo/drugresisstreppneum_t.htm.

Centers for Disease Control and Prevention, “Preventing pneumococcal disease among infants and young children: recommendations of the Advisory Committee on Immunization Practices (ACIP),” *Morbidity and Mortality Weekly Report*, Vol. 49, No. RR-9, 2000, pp. 1-35.

Syphilis

Disease Abstract

Of the 4,578 syphilis cases reported in 2008, 50% were diagnosed as primary, secondary, or early latent infection. Early (primary, secondary, and early latent) syphilis includes all cases where initial infection has occurred within the previous 12 months. In 2008, there were 2,290 early syphilis cases reported in Florida; a 10.6% increase from 2007. Infectious syphilis (primary and secondary stages) increased 14% from 2007; whereas early latent cases increased 7.9% in the same period. The incidence rate for early syphilis in 2008 was 12.1 per 100,000 population, compared to 11.1 per 100,000 population in 2007. Of the 2,290 early syphilis cases reported in 2008, nearly 70% were reported from five counties: Miami-Dade (569/2,290), Broward (386/2,290), Hillsborough (327/2,290), Orange (184/2,290), and Palm Beach (139/2,290). Fourteen counties reported no cases of early syphilis (Figure 1).

Overall, men accounted for 77% of the early syphilis cases among those over 14 years of age (Table 1). The greatest number of cases among men occurred in the 40 to 44 year old age group, with a second peak among those 20-24. Provisional risk factor data indicate 60% of primary and secondary syphilis cases were reported in men who have sex with men (MSM) populations in 2008. Trends since 1999 support the hypothesis that syphilis cases among MSM are a driving force behind increases in early syphilis, particularly the primary and secondary stages.

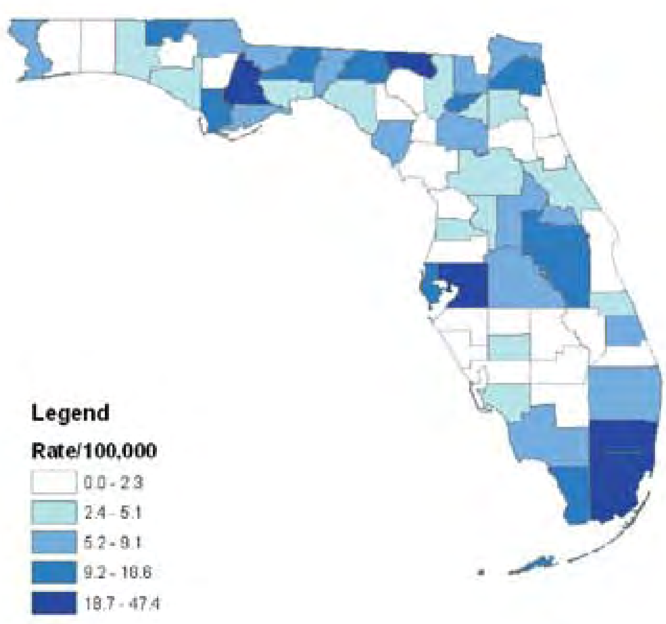
The greatest proportion of early syphilis cases for women was reported in the 15-24 age group, which accounted for 43% of cases. Nearly 60% of female cases were under 30 years of age, compared to 35% among males of the same age cohort. Age differences in males and females can be attributed to several factors: health seeking behavior, prenatal recommendations, and partner dynamics which all indicate that females are more likely to be screened and/or tested at an earlier age than males. Secondly, risk behaviors in older MSM populations contribute heavily to the distribution of disease among males.

Table 1. Reported Early Syphilis Cases by Age and Gender, Florida, 2007

	Total		Males		Females	
Age	#	%	#	%	#	%
15 – 19	190	8.3	95	5.4	95	18.0
20 – 24	404	17.7	274	15.6	130	24.6
25 – 29	326	14.2	240	13.6	86	16.3
30 – 34	288	12.6	234	13.3	54	10.2
35 – 39	287	12.5	228	13.0	59	11.2
40 – 44	335	14.6	289	16.4	46	8.7
45 – 49	225	9.8	196	11.1	29	5.5
50 – 54	113	4.9	100	5.7	13	2.5
55 -59	61	2.7	54	3.1	7	1.3
60+	55	2.4	50	2.8	5	0.9
Total	2,288	100.0	1,760	100.0	528	100.0

In 2008, the number of early syphilis cases increased 10.2% from 2007 among males and 11.5% among females. In 2008, the rate of early syphilis was highest among women in the 20-24 age group (21.8 cases per 100,000 population) and among men between the ages of 40-44 (44.3 cases per 100,000 population). The ratio of male to female rates of early syphilis was 3.3 to 1 overall but differed significantly among racial/ethnic groups. The male to female (M:F) rate ratio among non-Hispanic blacks was 2:1, Hispanics 5:1, and non-hispanic whites 7:1. The varying differences in male to female rate ratios indicate that early syphilis cases in non-Hispanic black populations are more sustained in heterosexual populations and early syphilis among Hispanic and non-Hispanic white populations continue to indicate stronger distribution among MSMs.

Figure 1: Early Syphilis Rates/100,000, 2008



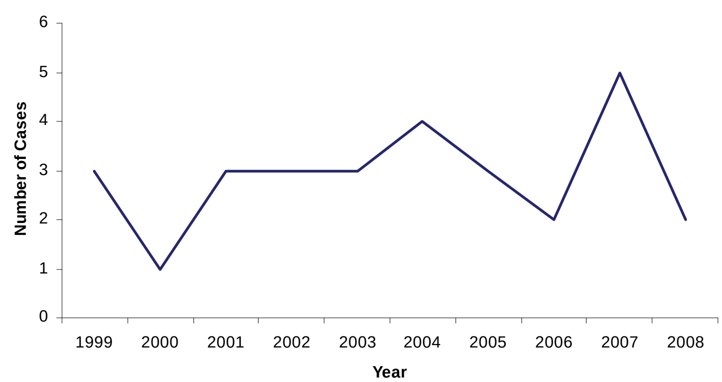
When looking at case counts, persons who self reported as non-Hispanic black accounted for 44.6% of the syphilis cases in 2008. Persons who self reported as non-Hispanic white accounted for 29.4% of the cases. Persons who self reported as Hispanic (regardless of race) accounted for 18.2% of the cases. Persons who self reported in other or unidentified racial and ethnic groups accounted for 11.3% of the cases. The rate per 100,000 for non-Hispanic blacks was 34.3 per 100,000 population. This rate was six times greater than the second highest rate, in non-Hispanic whites (5.9/100,000).

Prevention
Regardless of stage, cases reported in 2008 reflect an upward trend among both male and female populations. Community prevalence and higher risk-taking behaviors associated with certain populations continue to contribute to morbidity. Although syphilis is preventable, and infection can be diagnosed and cured with simple, inexpensive, and widely available tests, syphilis has remained endemic in Florida communities. The sequelae of untreated syphilis can result in neurological damage, paralysis, blindness, increased risk of HIV, and death. Untreated syphilis in pregnancy can lead to stillbirth, spontaneous abortion, and preterm delivery, and cause serious complications for neonates. The American Academy of Pediatrics, American College of Obstetricians and Gynecologists, and the Centers for Disease Control and Prevention recommend that women be screened for syphilis as early as possible in their pregnancies. *F.A.C.* 64D-3.019 and Florida Statute 384.31 requires that all women receive two tests during prenatal care. Syphilis in pregnant women and neonates is considered a notifiable condition of urgent public health importance. Reports should be made to the local county health department immediately.

Tetanus

Tetanus: Crude Data	
Number of Cases	2
2008 incidence rate per 100,000	0.01
% change from average 5-year (2003-2007) reported cases	-43.99
Age (yrs)	
Mean	57.5
Median	57.5
Min-Max	53-62

Figure 1.
Tetanus Cases by Year Reported, Florida, 1999-2008



Disease Abstract
Two confirmed cases of tetanus were reported in Florida for 2008, which is a decrease from the peak of five cases in 2007 (Figure 1). Both cases were hospitalized and survived, but had very different outcomes. One patient, with documented history of vaccine, had a puncture wound from a fish hook and developed symptoms within a week. Treatment was given and the patient recovered quickly. In the other case, the patient developed symptoms weeks after a puncture wound from an animal. This diabetic patient neglected wound treatment and developed paralysis. Recuperation was prolonged and required intubation and tube feeding.

Prevention
Vaccination against tetanus is recommended to begin at two months of age, and continue through adulthood at appropriate intervals to maintain protection against the disease. Primary tetanus immunization with diphtheria and tetanus toxoid and acellular pertussis vaccine (DTaP) is recommended for all persons, starting at six weeks old, but <7 years of age, and without contraindications. This vaccine

is available in combination with other childhood vaccines. Routine tetanus booster immunization, combined with diphtheria toxoid, is recommended for all persons >7 years of age every ten years. The adult formulation of tetanus and diphtheria toxoids and pertussis (Tdap) is the vaccine of choice for at least one dose. As of school year 2009-2010, Tdap vaccine is required for entry into seventh grade. When protection from pertussis is needed, this dose can be given two years from the last dose of tetanus-containing vaccine.

The appropriate use of tetanus toxoid and tetanus immune globulin (TIG) in wound management is also important for the prevention of tetanus. Since herd immunity does not play a role in protecting individuals against tetanus, all persons must be vaccinated.

References

Centers for Disease Control and Prevention, *Manual for the Surveillance of Vaccine-Preventable Diseases*, 4th ed., 2008, Chapter 16.

Additional Resources

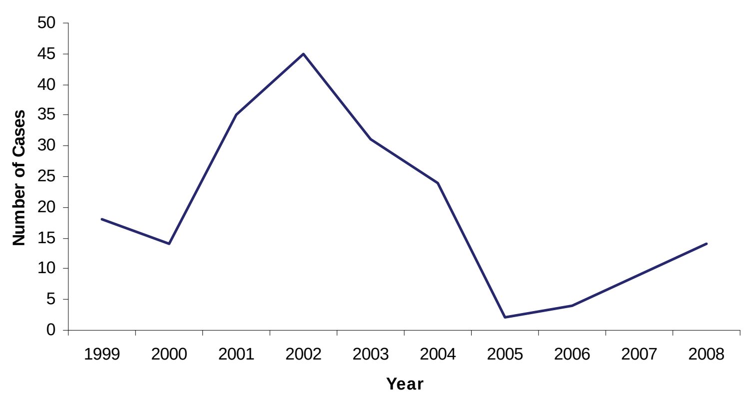
Disease information is available from the Centers for Disease Control and Prevention (CDC) at http://www.cdc.gov/vaccines/vpd-vac/tetanus/default.htm.

Recommended immunization schedule is available at: http://www.cdc.gov/vaccines/recs/ schedules/default.htm.

Toxoplasmosis

Toxoplasmosis: Crude Data	
Number of Cases	14
2008 incidence rate per 100,000	0.07
% change from average 5-year (2003-2007) reported cases	0.00
Age (yrs)	
Mean	42.57
Median	38.5
Min-Max	24 - 67

Figure 1.
Toxoplasmosis Cases by Year Reported, Florida, 1999-2008

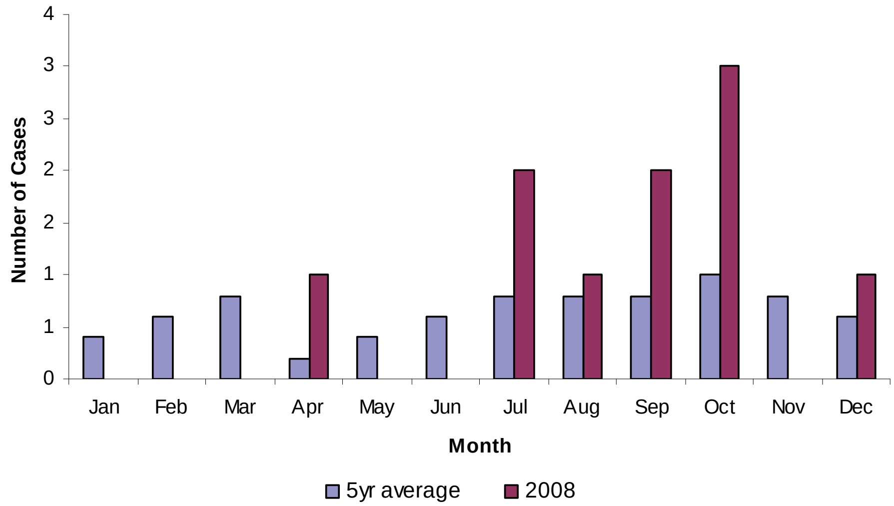


Disease Abstract

The number of cases of Toxoplasmosis increased between 2000 (14) and 2002 (45), declined to two cases in 2005, and has been steadily increasing (Figure 1). Of the cases reported in 2008, 11 were confirmed, and three were probable. No outbreaks of toxoplasmosis have been reported in the past 10 years. Most cases of toxoplasmosis occur in immunocompromised individuals without a recent or specific exposure history. This is also true for all the cases of toxoplasmosis confirmed in Florida during 2008.

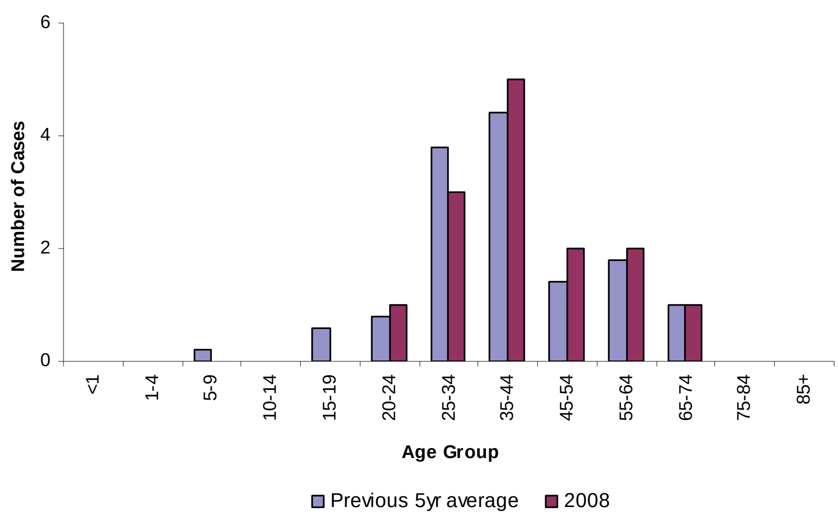
During the past five years, the cases reported were distributed throughout all the months of the year; in 2008, cases clustered in July through October and came from only eight counties (Alachua, Dade, Highlands, Hillsborough, Lee, Palm Beach, Orange and Seminole) (Figure 2).

Figure 2.
Toxoplasmosis Cases by Month of Onset, Florida, 2008



The average number of cases for the past five years was highest in those aged 25-34 years with a bell-shaped distribution surrounding this group. The 2008 data shows a very similar pattern with cases occurring in those 24 to 67 years old (Figure 3). Between 2002 and 2006, females had a higher incidence rate than males (0.16 and 0.08 per 100,000, respectively), but in 2008 there were more cases in males than females.

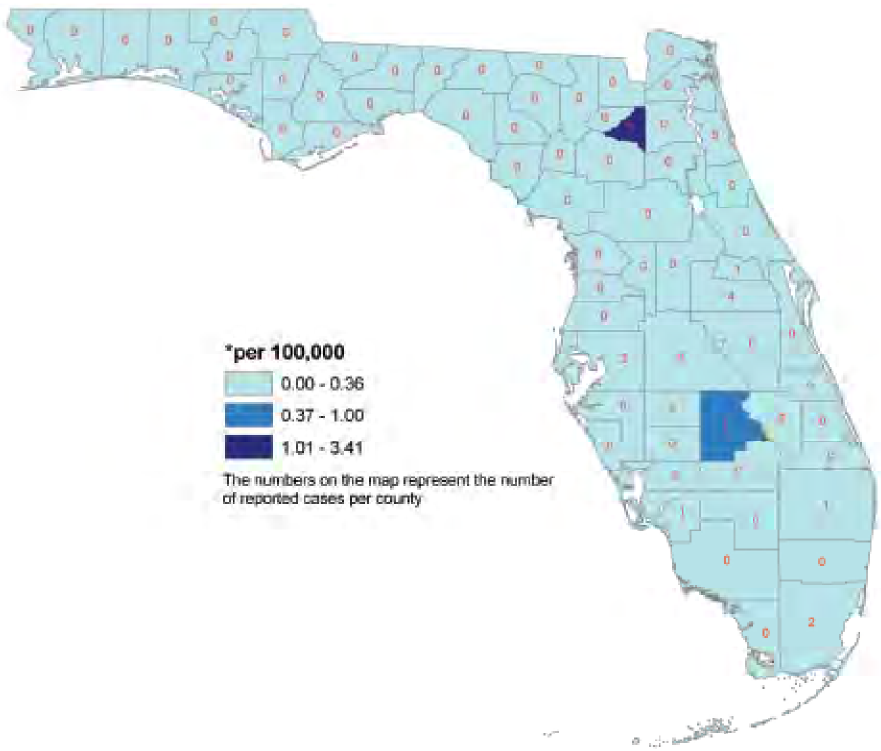
Figure 3.
Toxoplasmosis Cases by Age Group, Florida, 2008



Prevention

Prevention measures should include education of immunocompromised persons and pregnant women to include: proper handwashing; thorough freezing or cooking of meats; avoidance of cleaning cat litter pans; and wearing gloves when gardening; as well as containment of cats as indoor pets, daily disposal of cat feces and litter, and covering of sandboxes to prevent access from stray cats.

Toxoplasmosis Incidence Rate* by County, Florida, 2008



References

David L. Heymann (ed.), *Control of Communicable Diseases Manual*, 18th ed., American Public Health Association Press, Washington, District of Columbia, 2004.

Additional Resources

Disease information is available from the Centers for Disease Control and Prevention (CDC) at http://www.cdc.gov/ncidod/dpd/parasites/toxoplasmosis/default.htm and http://www.cdc.gov/ncidod/dpd/parasites/toxoplasmosis/moreinfo_toxoplasmosis.htm.

Tuberculosis

Disease Abstract

Florida reported 953 cases of tuberculosis (TB) for 2008, a four percent decrease from 2007 (Figure 1). Pulmonary cases represented 81% of all cases while 16% were extra-pulmonary, meaning occurring outside of the lungs, and three percent were both. Florida's "Big Six" counties, Miami-Dade (197), Duval (102), Orange (87), Broward (85), Hillsborough (69), and Palm Beach (65) reported 63% of Florida's TB morbidity for 2008. The incidence rate decreased from 5.2 per 100,000 population in 2007 to 5.0 per 100,000 population in 2008, which represents a decrease of 36 cases overall (Figure 2).

Figure 1. TB Morbidity in Florida, 1990-2008

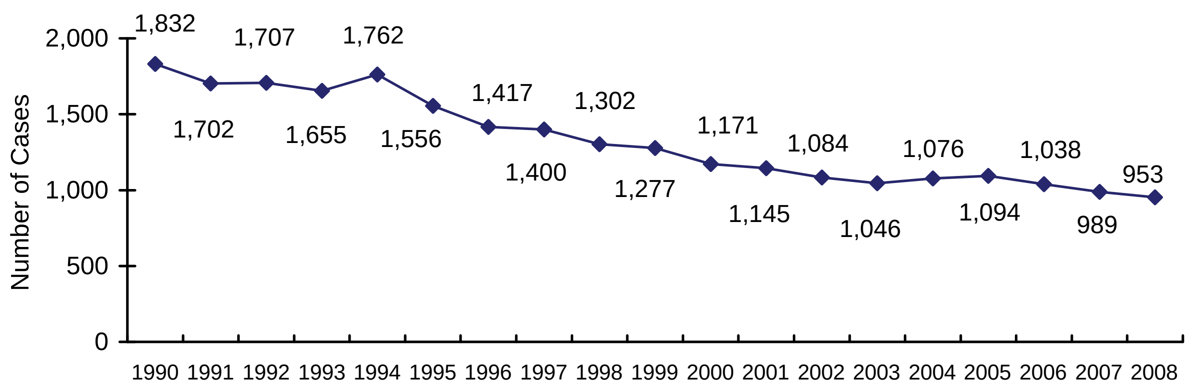
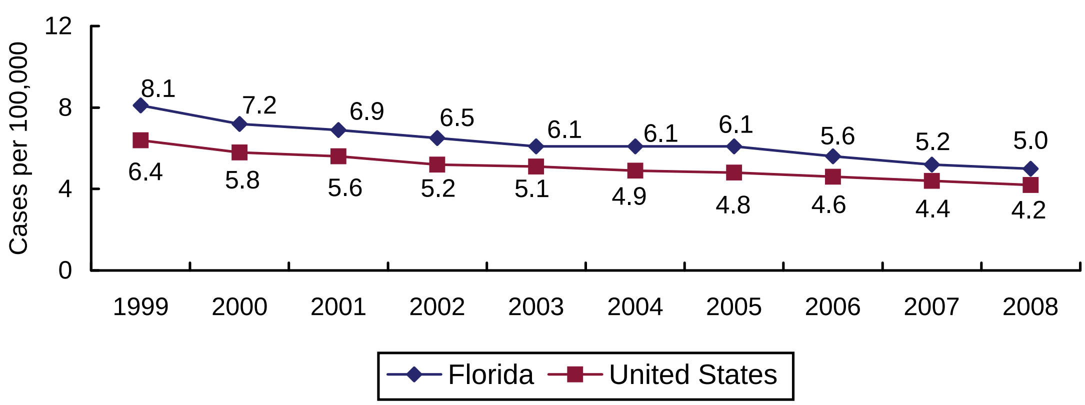


Figure 2. TB Incidence Rates in Florida, 1999-2008



Medically underserved and low-income populations as well as racial and ethnic minorities disproportionately carry the burden of TB in Florida. In 2008, 41% (386/953) of TB cases were among non-Hispanic blacks, 27% (257/953) were Hispanic, and 10% (94/953) were Asian. Non-Hispanic whites represented 22% (208/953) of TB cases. For the state as a whole, non-Hispanic whites comprise 61% of the population, Hispanics comprise 21%, and non-Hispanic blacks comprise 16%. Looking at these racial/ethnic comparisons shows that non-Hispanic blacks make up a small minority of the population in Florida (16%) but bear the highest proportion of the TB cases (41%). Comparing the racial and ethnic breakdown of TB cases by place of birth shows that of foreign-born cases, the majority occur among Hispanics (46%), whereas the majority of U.S.-born cases occur among non-Hispanic blacks (52%) (Table 1).

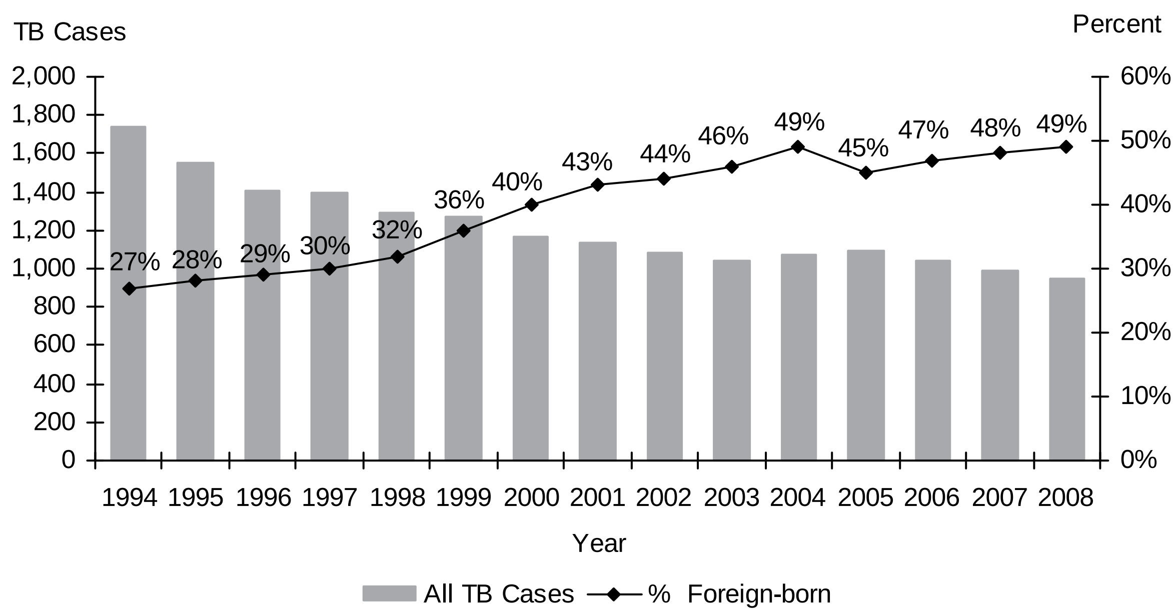
Table 1. Tuberculosis Cases by Race and/or Ethnicity and Place of Birth, Florida, 2008

Race/Ethnicity	U.S. Born	% U.S. Born	Foreign Born	% Foreign Born	Total	Total %
Black, Non-Hispanic	254	52	132	28	386	41
Hispanic (all races)	42	9	215	46	257	27
White, Non-Hispanic	184	38	24	5	208	22
Asian Only	3	1	91	20	94	10
American Indian/ Alaskan Native	1	<1	0	N/A	1	<1
Native Hawaiian/ Pacific Islander	0	N/A	1	<1	1	<1
Multiple Race	2	<1	0	N/A	2	<1
Unknown	2	<1	1	<1	3	<1
Total	**488**		**464**		**952***	

*One Reported case is not included (white race with unknown ethnicity)
Percents have been rounded

In 2004, foreign-born people represented almost 50% (526/1,076) of Florida's TB cases. The proportion decreased to 45% (496/1,094) in 2005, but began to rise again for the next three years. In 2008, foreign-born people once again represented almost 50% (464/953) of Florida's TB morbidity. This shows that while the number of TB cases has been steadily decreasing over the past five years, the proportion of cases that are among foreign-born people has been increasing.

Figure 3. Trends in Foreign-Born TB, Florida 1994-2008



Globally, males represent the largest percentage of TB cases. That same trend is observed in Florida where males were 64% (614/953) of reported TB cases in 2008 and females were 35% (338/953). The TB incidence rate for males was almost twice that of females. Also, males between the ages of 25 and

64 represented 44% (423/953) of cases whereas females of the same age group represented 24% (227/953) of TB cases in 2008. The same level of differences between the genders is not seen when broken down by age group. For children 5-14, the rate among males and females is almost identical, whereas among those 45 to 64 years old, the rate among males is almost two and a half times higher than among females (Table 2). Some available research shows that the gender difference in incidence rates could be due to care-seeking behaviors. Women tend to present to health care providers later in their illness. Additionally, behavioral risk factors for disease including excess alcohol consumption, drug use, homelessness, and incarceration are reported much less frequently in female TB cases.

Table 2. Age and Gender Specific Incidence Rates per 100,000 Population, Florida, 2008

Age Groups	Male	Female	Combined
0-4 years	4.4	2.5	3.5
5-14 years	0.3	0.5	0.39
15-24 years	5.0	2.6	3.8
25-44 years	6.8	4.8	5.8
45-64 years	10.8	4.5	7.6
65 and older	7.2	3.3	5.0

Overall, cases 14 years and younger comprised five percent of TB cases (48/953) and 15 to 24-year-olds were 10% (93/953) of cases. Age group 25 to 44 represented 29% (278/953) and 39% (372/953) were 45 to 64 years of age for 2008. Cases 65 years or older were 17% (162/953) of TB cases (Table 3).

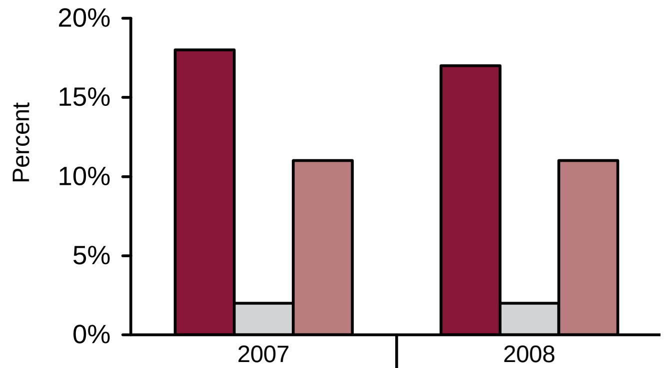
Table 3. Tuberculosis Cases by Age Group, Florida, 2008

Age Groups	2008 Cases	% of TB (n=953)
0-4 years	39	4
5-14 years	9	1
15-24 years	93	10
25-44 years	278	29
45-64 years	372	39
65 and older	162	17

<u>At-risk Populations</u>

About 31% (308/989) of TB cases in 2007 reported drinking excessive amounts of alcohol, injecting drugs, or using non-injectable drugs within the year of TB diagnosis (Figure 4). In 2008, that number decreased to approximately 29% (280/953) of cases.

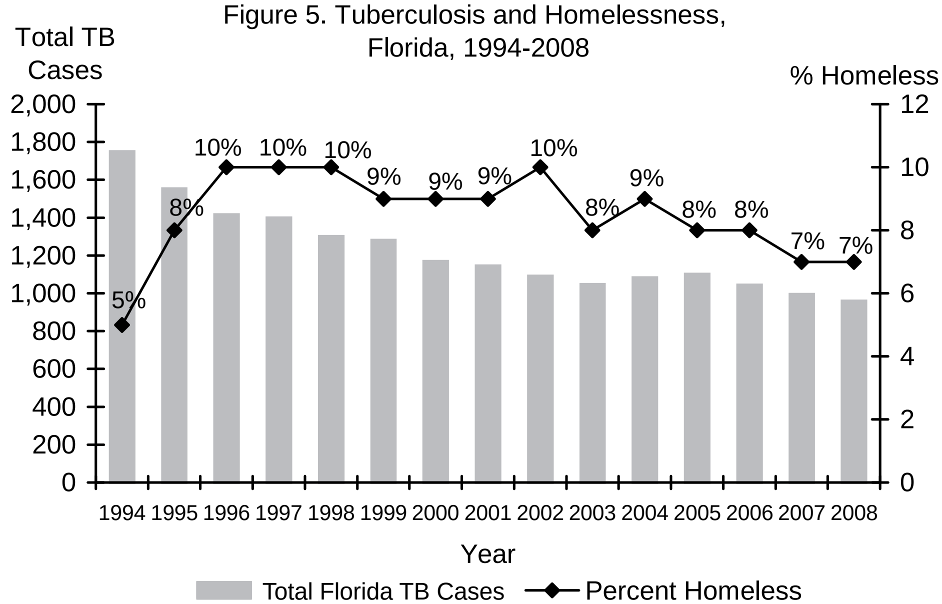
Figure 4. Tuberculosis and Substance Abuse During Year of Diagnosis, Florida, 2007 and 2008



	2007	2008
Excess alcohol use within year	18%	17%
Injecting drug use within year	2%	2%
Non-injecting drug use within year	11%	11%

The homeless are a marginalized population with issues such as poverty, poor nutrition, and, in some cases, substance abuse. These factors increase the probability of progression from TB infection to disease. Infection may also be more common because of exposure to high-risk settings such as homeless shelters. In 2007, seven percent (70/989) of Florida's TB cases were reported as homeless (Figure 5). The number of homeless TB cases remained seven percent (65/953) in 2008.

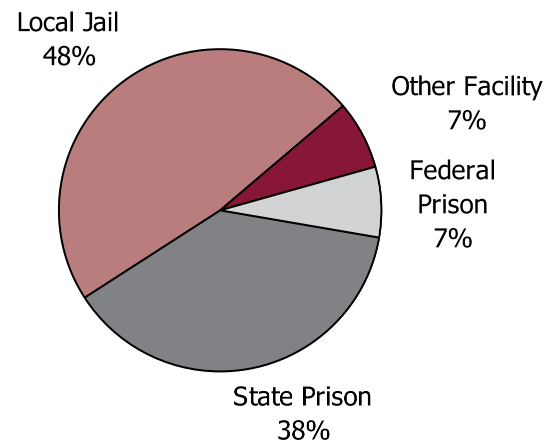
Figure 5. Tuberculosis and Homelessness, Florida, 1994-2008



People who are incarcerated are a potentially at-risk population for TB infection. Failure to diagnose and effectively treat TB in incarcerated populations creates a potential risk of infecting other inmates as well as eventually exposing the general community to possible TB infection. In 2008, three percent (29/953) of Florida's TB cases were incarcerated at the time of diagnosis. Local jails represented 48% (14/29) of

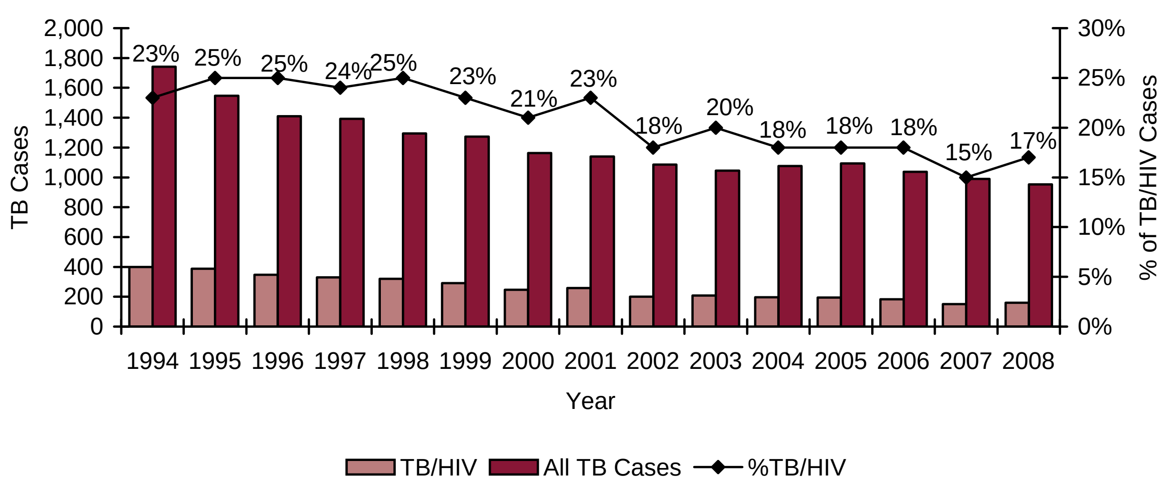
TB cases among those incarcerated (Figure 6). Federal and state prisons housed 45% (13/29) of cases and seven percent (2/29) were housed at Krome Detention Center (a federal facility that houses both criminal and non-criminal aliens). Of the 29 cases diagnosed in correctional facilities, 21% (6/29) were co-infected with HIV.

Figure 6. Tuberculosis in Correctional Facilities, Florida, 2008



In 2008, TB/HIV co-infection increased to 17% (161/953) from 15% (150/989) in 2007. From 1993-2006, 22% of Florida's TB cases were reported to be co-infected with HIV (Figure 7). Fifty-eight percent (94/161) of TB/HIV cases were in U.S.-born people in 2008. Foreign-born people comprised 42% (67/161) of HIV co-infected TB cases.

Figure 7. Trend of TB and HIV, Florida, 1994-2008

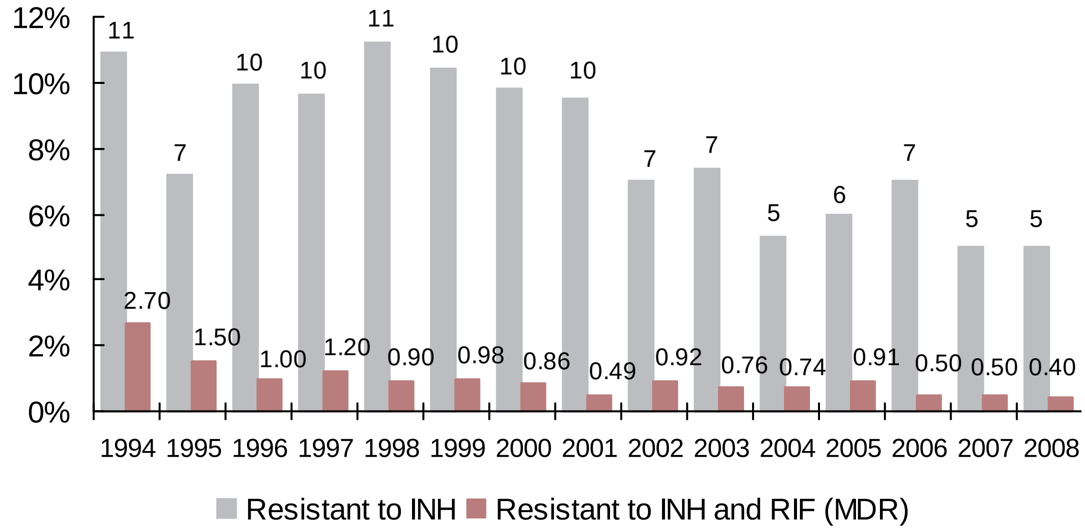


Drug Resistance

Drug resistant TB cases require additional resources including knowledgeable staff to medically manage or provide expert advice to treating staff. Florida's TB program utilizes the services of a network of physicians and A.G. Holley State Hospital, a specialty TB hospital, to provide expert medical consultation in order to assist in the management of drug resistant cases and/or ensure the utilization of appropriate drug regimens. A.G. Holley State Hospital exists to treat the most medically and behaviorally complex cases of TB: cases that have failed treatment in the community. It is one of only a few hospitals in the nation dedicated to the treatment of TB. The hospital treats and cures an average of 100 patients each year, including those with drug resistant strains of TB.

In 2008, five percent (50/953) of Florida's TB cases were resistant to the first line TB treatment drug Isoniazid (INH) (Figure 8). Less than one percent (4/953) was resistant to both Isoniazid (INH) and Rifampin (RIF) – MDR. Florida did not report any extensively drug resistant (XDR) TB cases in 2008.

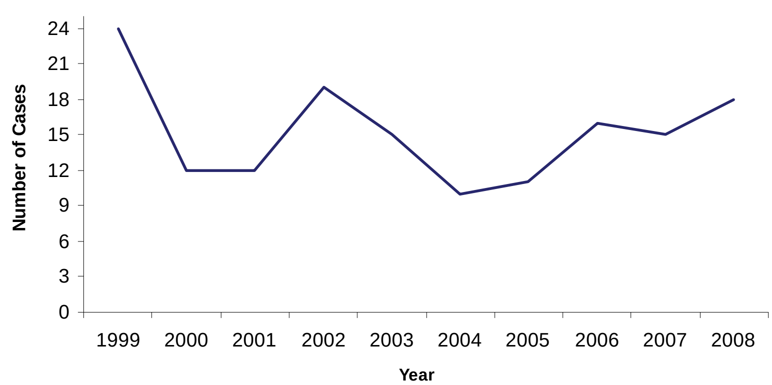
Figure 8. Primary Antibiotic Resistance of TB Isolates, Florida, 1994-2008



Typhoid Fever

Typhoid Fever: Crude Data	
Number of Cases	18
2008 incidence rate per 100,000	0.10
% change from average 5 year (2003-2007) reported cases	34.33
Age (yrs)	
Mean	22.56
Median	16
Min-Max	1 - 68

Figure 1.
Typhoid Fever Cases by Year Reported, Florida, 1999-2008



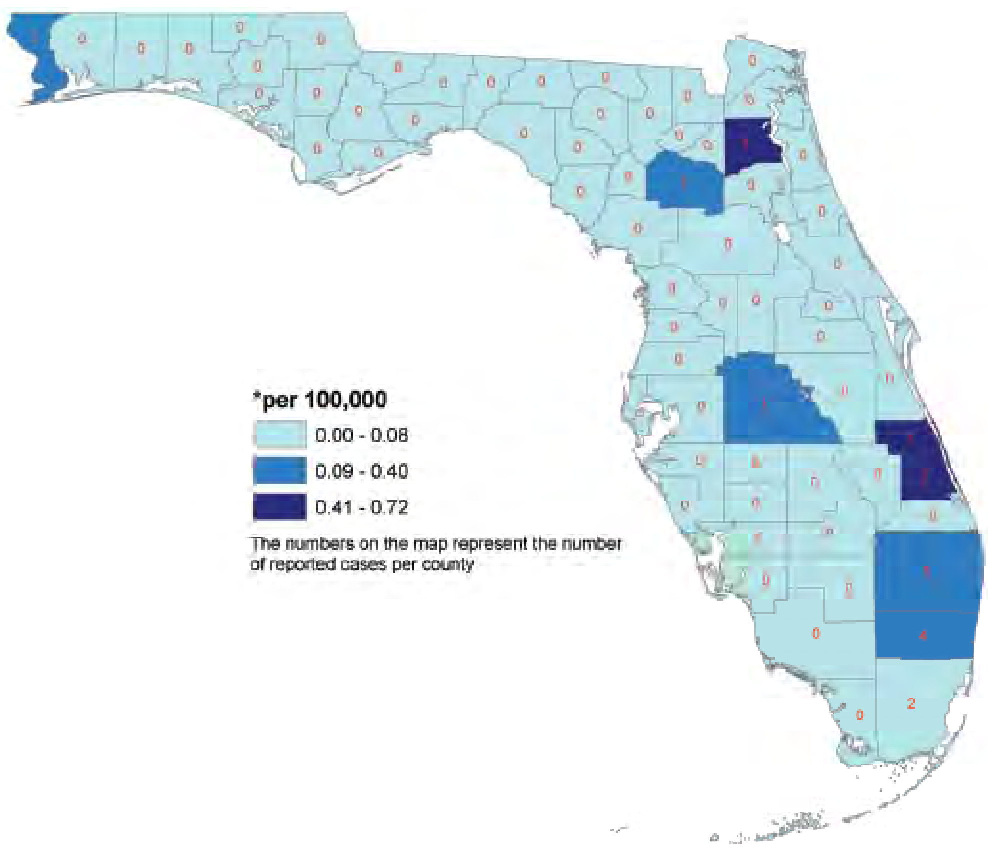
Disease Abstract

The overall number of confirmed cases of typhoid fever for the last 10 years has ranged from 10-24 annually, and in 2008 was 18 cases, representing an incidence rate of 0.10 per 100,000. This was a 34.33% increase from the average number of cases in the previous five years (Figure 1). All of the 2008 cases were classified as confirmed, and the median age was 16. Over the past five years, and consistent with national data, the majority of the cases (66-90%) are acquired outside the U.S. The counties reporting the greatest number of cases were Broward and Palm Beach. Cases tend to be isolated, rather than clustered. They typically occur more frequently in the summer months, and in 2008, the majority of cases occurred in July-October. Only a single outbreak of typhoid fever (18 cases, 1997) occurred in Florida in the past 12 years. This outbreak was traced to frozen shakes made with imported frozen mamey fruit. Please see the Summary of Notable Outbreaks and Case Investigations for a description of cases imported from Haiti in 2008.

Prevention

Prevention is through proper sanitation, safe food handling practices, and appropriate case management. These include proper handwashing, appropriate disposal of human waste products, access to safe and purified water supplies, control of insects, appropriate refrigeration, and cleanliness in preparation of food products in both home and commercial settings. In endemic areas, this includes drinking bottled or carbonated water, cooking foods thoroughly, peeling raw fruits and vegetables, and in general, avoiding food or drink from street vendors. Immunization is recommended only for those with occupational exposure to enteric infections or for those traveling or living in endemic, high risk areas.

Typhoid Fever Incidence Rate* by County, Florida, 2008



References

David L. Heymann (ed.), *Control of Communicable Diseases Manual*, 18th ed., American Public Health Association Press, Washington, District of Columbia, 2004.

Additional Resources

Disease information is available from the Centers for Disease Control and Prevention (CDC) at http://www.cdc.gov/ncidod/dbmd/diseaseinfo/typhoidfever_g.htm.

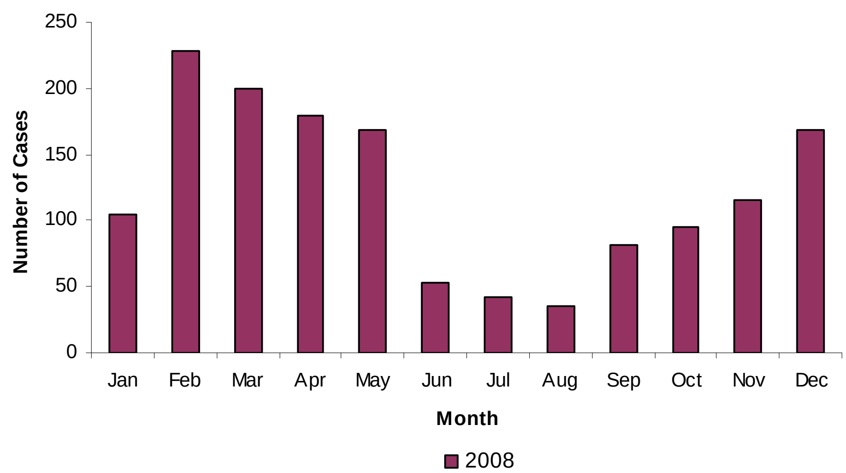
Varicella

Varicella: Crude Data	
Number of Cases	1,735
2008 incidence rate per 100,000	9.18
% change from average 5 year (2003-2007) reported cases	N/A
Age (yrs)	
Mean	13.9
Median	9
Min-Max	0-93

Disease Abstract

Varicella was reported in 51 of the 67 Florida counties. Cases may be under-reported since 2007 was the first full year of case reporting in Florida and 1,321 cases were reported that year. The 1,735 cases reported in 2008 include confirmed and probable cases, as did all previously reported numbers. Of these cases, 1,060 had a history of vaccination. There were 582 outbreak-associated cases. Childcare centers and schools are the most common sites for varicella outbreaks.

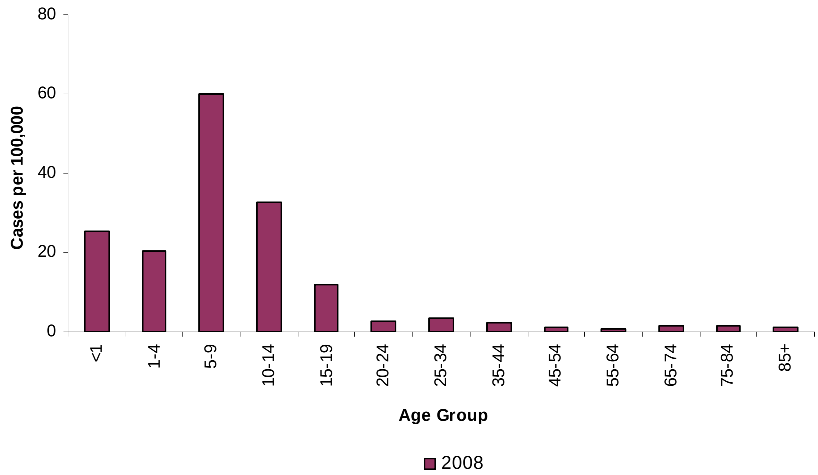
Figure 2.
Varicella Cases by Month of Onset, Florida, 2001-2008



Prevention

The varicella vaccine is recommended at 12–15 months and at 4–6 years of age. Doses given prior to 13 years of age should be separated by at least three months. Doses given after 13 years of age should be separated by at least four weeks. Due to the occurrence of disease after one dose of vaccine, the current recommendation is now for two doses of vaccine. Proof of varicella vaccination or healthcare provider documentation of disease is required for entry and attendance in childcare facilities, family day care homes, and schools for certain grades.

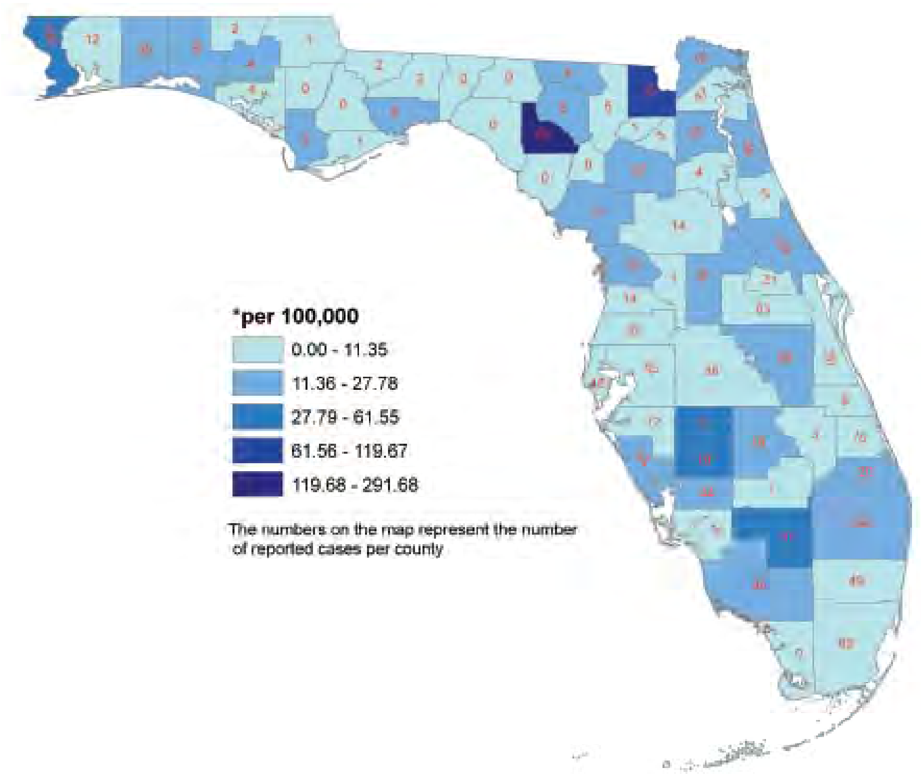
Figure 3.
Varicella Incidence Rate by Age Group, Florida, 2008



The Advisory Committee on Immunization Practices recommends the use of varicella vaccine for susceptible persons following exposure to a case of varicella infection. If administered within 72 hours, and possibly up to 120 hours following varicella exposure, varicella vaccine may prevent or significantly modify disease. Post-exposure vaccine use should be considered following exposures in health care settings, where transmission risk should be minimized at all times, and in households. If exposure to varicella does not cause infection, post-exposure vaccination with varicella vaccine should induce protection against subsequent infection. If exposure results in infection, the vaccine may reduce the severity of the disease.

Varicella zoster immune globulin (VZIG), if available, is recommended for post-exposure prophylaxis of susceptible persons who are at high risk for developing severe disease and when varicella vaccine is contraindicated. VZIG is most effective in preventing varicella infection when given within 96 hours of varicella exposure. After the only U.S. licensed manufacturer of VZIG announced it had discontinued production, an investigational (not licensed) product, VariZIG, became available in February 2006 under an investigational new drug application (IND) submitted to the Food and Drug Administration. This new product can be obtained from the distributor (FFF Enterprises, Inc., Temecula, CA) by calling 800-843-7477.

Varicella Incidence Rate* by County, Florida, 2008



References

Centers for Disease Control and Prevention, *Manual for the Surveillance of Vaccine-Preventable Diseases*, 4th ed., 2008, chapter 17.

Additional Resources

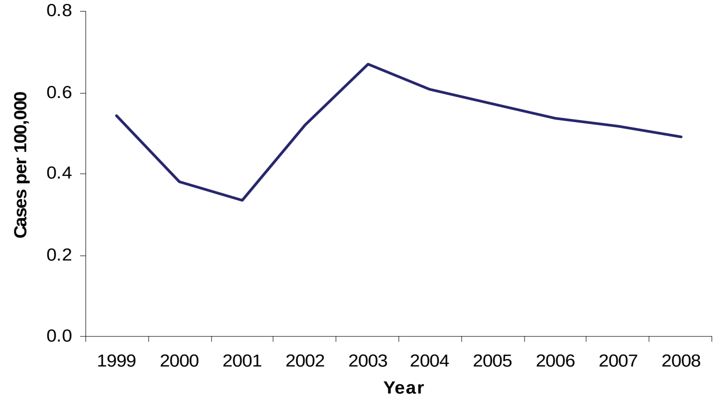
Disease information is available from the Centers for Disease Control and Prevention (CDC) at www.cdc.gov/vaccines/vpd-vac/varicella/default.htm.

Recommended immunization schedule is available at: http://www.cdc.gov/vaccines/recs/ schedules/ default.htm.

Vibriosis

Vibrio Infections: Crude Data	
Number of Cases	93
2008 incidence rate per 100,000	0.49
% change from average 5 year (2003-2007) incidence rate	-15.01
Age (yrs)	
Mean	46.86
Median	48
Min-Max	1 - 88

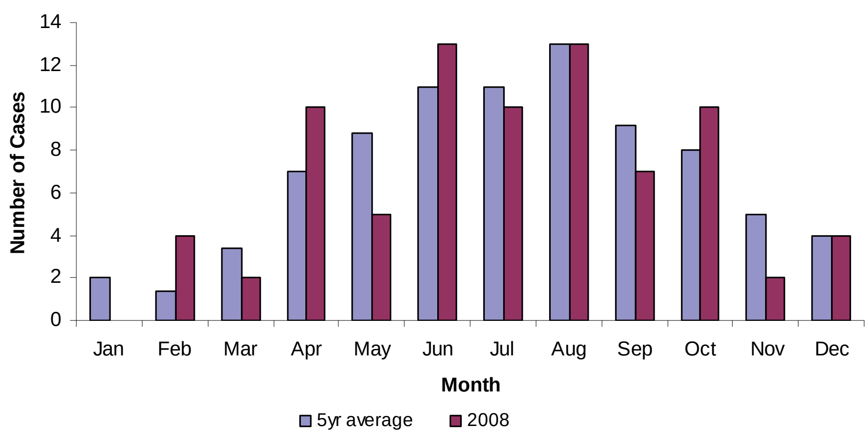
Figure 1.
Vibrio Infections Incidence Rate by Year Reported, Florida, 1999-2008



Disease Abstract

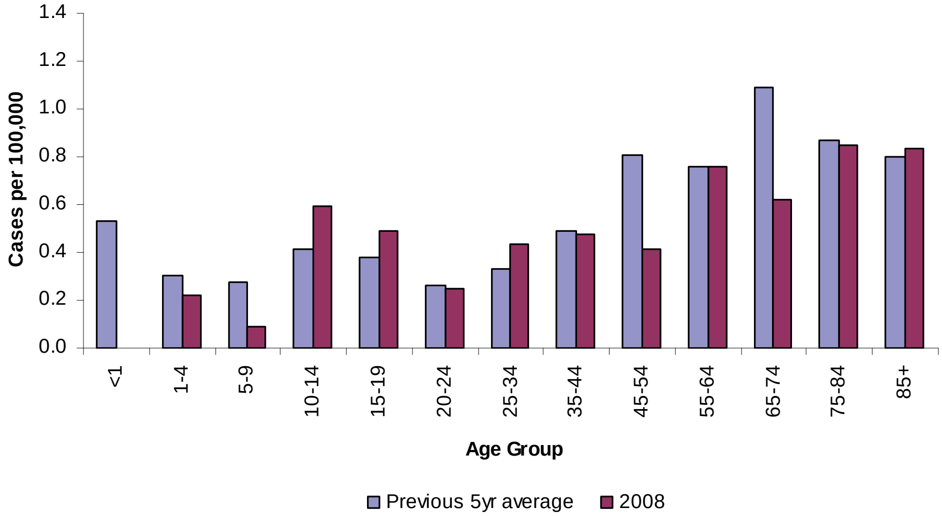
The genus *Vibrio* consists of gram-negative, curved, motile rods, and contains about a dozen species known to cause human illness. Transmission occurs primarily through the foodborne route, and in Florida it is principally from eating raw or undercooked shellfish. Transmission can also occur through contact of broken skin with seawater where *Vibrio* species are endemic, which includes the coastal areas of the Gulf of Mexico. The symptoms depend on the infecting *Vibrio* species. The species of greatest public health concern in Florida are *V. vulnificus* and *V. parahaemolyticus*. This report combines data on *Vibrio* infections to provide a general measure of disease burden.

Figure 2.
Vibrio Infections Cases by Month of Onset, Florida, 2008



In comparison to the previous average 5-year incidence, the incidence for *Vibrio* infections in 2008 declined (15.01%) (Figure 1). A total of 93 cases were reported in 2008, of which 100% were confirmed. The majority of cases were considered sporadic (93%), not outbreak-associated, and six were of unknown origin. *Vibrio* infections typically increase during the warmer months. In 2008, 85% of the cases occurred from April to October (Figure 2).

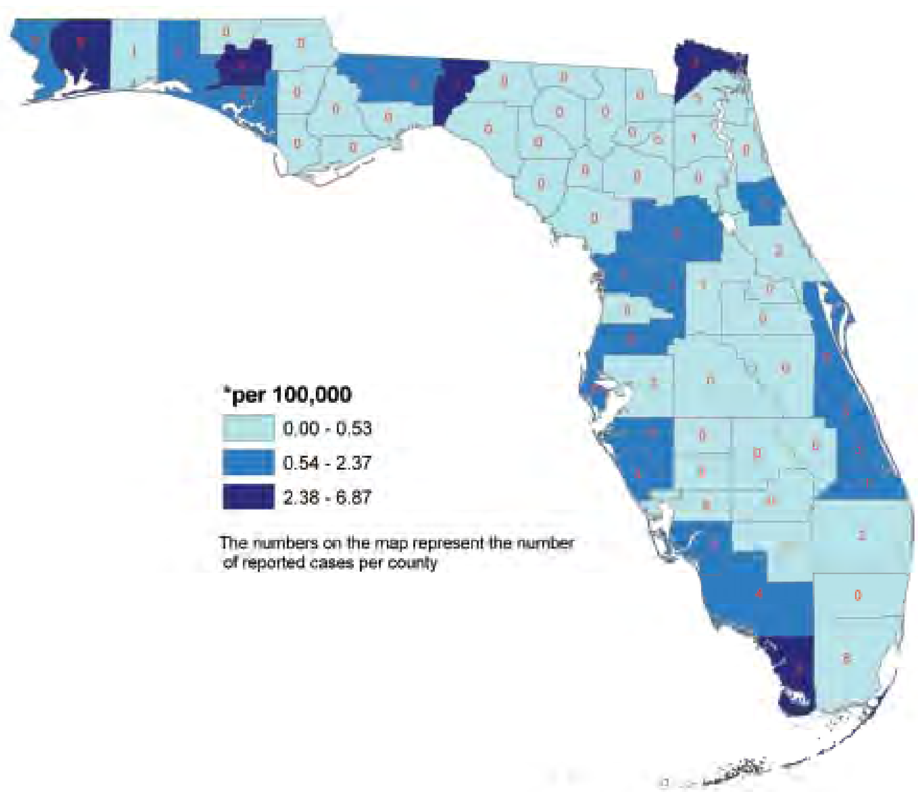
Figure 3.
Vibrio Infections Incidence Rate by Age Group, Florida, 2008



There are consistently high incidence rates among individuals over 45 years old with a historical peak incidence occurring in the 65-74 age group (1.09 per 100,000) (Figure 3). This is a population that is likely to have chronic conditions that predispose them to these infections. However, in 2008, there were relatively high incidence rates among those 10-19 years old. Historically, white males have the highest incidence rate and that continued in 2008 (0.75 per 100,000). The lowest incidence rate for 2008 was among non-white females (0.05 per 100,000).

Vibrio cases were reported in 32 of the 67 counties in Florida in 2008. The higher-incidence counties appear to be along the coasts.

Vibrio Infections Incidence Rate* by County, Florida, 2008



Vibrio vulnificus infections

V. vulnificus typically manifests as septicemia in persons who have chronic liver disease, or chronic alcoholism, or are immunocompromised, and is commonly associated with the consumption of raw oysters. Of the *Vibrio* species reported in 2008, 16 were *Vibrio vulnificus*, an important *Vibrio* infection causing death in 50% of reported cases. Of the 16 reported *Vibrio vulnificus* cases, six were wound infections (one death) and eight were attributed to oyster consumption (five deaths). Exposure was unknown in two of the cases (both fatal).

Vibrio parahaemolyticus infections

V. parahaemolyticus typically manifests as a gastrointestinal disorder with symptoms of diarrhea, abdominal pain, nausea, fever, and headache. It is commonly associated with the consumption of raw oysters and is also associated with the consumption of cross-contaminated crustacean shellfish (crab, shrimp, and lobster). Of the *Vibrio* species reported in 2008, 21 were *Vibrio parahaemolyticus*. Of these 21 cases, nine were wound infections, four were attributed to oyster consumption, one was attributed to crab consumption, and one case had multiple seafood exposures. Exposure was unknown in six of the cases. No deaths from *Vibrio parahaemolyticus* infection were reported.

Vibrio alginolyticus infections

V. alginolyticus infections typically present as self-limited wound infections and ear infections. Septicemia and death have been reported in immunocompromised individuals and burn patients. Infection is commonly associated with exposure to seawater. Of the *Vibrio* species reported in 2008, 28 were *Vibrio alginolyticus*. Of these 28 cases, 22 were wound infections and six were ear infections. No deaths from *Vibrio alginolyticus* were reported.

Table 1. *Vibrio* Infections- Confirmed Cases by Species and Exposure Type, Florida, 2008

		Exposure		
	Total Cases	Seafood*	Wound†	Unknown
Vibrio alginolyticus	28	0	22	0
V. parahaemolyticus	21	6	9	6
V. vulnificus	16	8	6	2
V. fluvialis	9	2	4	3
V. cholerae non-O1	2	0	1	0
V. hollisae	1	1	0	0
V. mimicus	4	3	1	0
Other	13	1	8	1
Total	94	21	51	12

**Includes shellfish (raw oysters and clams)*

†Includes pre-existing and sustained wounds

References

Chien J, Shih J, Hsueh P, Yang P, Luh K, "*Vibrio alginolyticus* as the Cause of Pleural Empyema and Bacteremia in an Immunocompromised Patient," *European Journal of Clinical Microbiology & Infectious Diseases*, 2002, Vol. 21, pp. 401-403.

David L. Heymann (ed.), *Control of Communicable Diseases Manual*, 18th ed., American Public Health Association Press, Washington, District of Columbia, 2004.

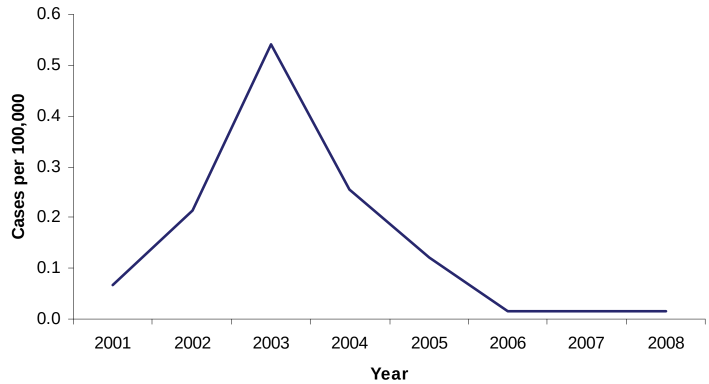
Additional Resources

Disease information is available from the Centers for Disease Control and Prevention (CDC) at http://www.cdc.gov/nczved/dfbmd/disease_listing/vibriop_gi.html and http://www.cdc.gov/nczved/dfbmd/disease_listing/vibriov_gi.html.

West Nile Virus

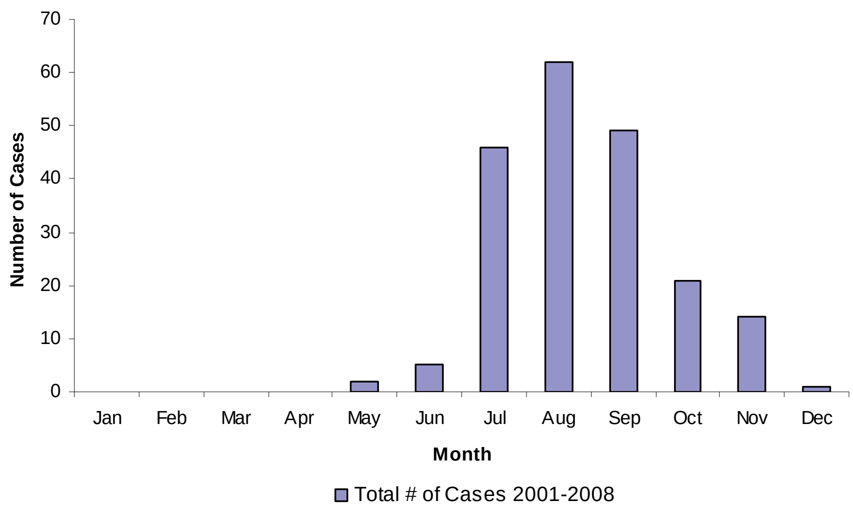
West Nile Virus: Crude Data	
Number of Cases	3
2008 incidence rate per 100,000	0.02
% change from average 5-year (2003-2007) reported cases	-91.02
Age (yrs)	
Mean	61.33
Median	70
Min-Max	39 - 75

Figure 1.
West Nile Virus Incidence Rate by Year Reported, Florida, 1999-2008



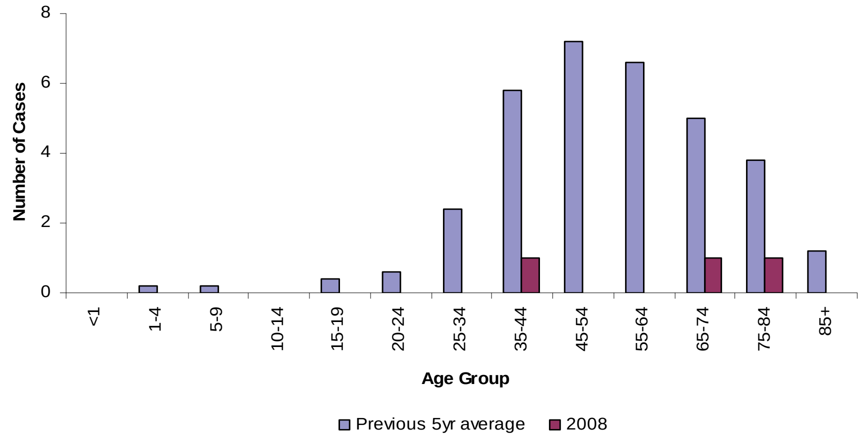
Disease Abstract
The incidence rate for West Nile virus (WNV) disease, including the neuroinvasive and non-neuroinvasive forms, peaked in Florida in 2003 (Figure 1). In 2008, there were two locally-acquired human cases, and one Floridian became ill after being exposed in another state. All were classified as neuroinvasive disease. The level of virus transmission between bird and mosquito populations is dependent on a number of environmental factors. The low levels of activity reported in 2006-2008 were likely a result of the dry conditions experienced by much of the state. The peak transmission period for WNV in Florida occurs July through September (Figure 2).

Figure 2.
West Nile Virus Disease by Month of Onset, Florida, 2001-2008



The greatest number of cases occur in individuals over the age of 35 (Figure 3), with more cases among males than females. WNV transmission tends to be localized in Florida. In 2001, the epicenter of the WNV outbreak was in the north-central part of the state. The following year, activity was most intense in the northwestern and central counties. The focus in 2003 was the panhandle, while south Florida had the most activity in 2004. In 2005, 86% of the human cases were in Pinellas County. Both locally acquired cases in 2008 were in Escambia County.

Figure 3.
West Nile Virus Cases by Age Group, Florida, 2008



In general, approximately 80% of those infected show no clinical symptoms. Twenty percent have mild symptoms, and less than 1% experience the most severe neuroinvasive form of illness. People over the age of 50 seem to be at increased risk for neuroinvasive disease. The case fatality rate for neuroinvasive disease is approximately 7% in Florida. The average cost of a single death from West Nile Virus was estimated at $225,000 in one study (Zohrabian et al, 2004). Interestingly, activity of a related disease, St. Louis Encephalitis, has decreased dramatically since WNV was first detected in the state in 2001. Research suggests that antibodies for WNV may protect against SLEV.

Prevention

There is no specific treatment for WNV disease, and therapy is supportive for ill persons. Prevention of the disease is a necessity. Measures can be taken to avoid being bitten by mosquitoes. Drain any areas of standing water from around the home to eliminate mosquito breeding sites. Use insect repellents that contain DEET or other EPA-approved ingredients such as Picaridin, oil of lemon eucalyptus, or IR3535. Avoid spending time outdoors during dusk and dawn, the time when disease-carrying mosquitoes are most likely to be biting. Dress in long sleeves and long pants to protect your skin from mosquitoes. In addition, inspect screens on doors and windows for holes to make sure mosquitoes cannot enter the home. A vaccine is available for horses.

References

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Fang, Y, Reisen WK. "Previous infection with West Nile or St. Louis encephalitis viruses provides cross protection during reinfection in house finches." *Am J Trop Med Hyg*. 2006;75 (3): 480-5.

Zohrabian A, Meltzer M, Ratard R, et al. "West Nile Virus Economic Impact, Louisiana, 2002." *Emerging Infectious Diseases*. 2004 (10):1736-1744.

Additional Resources

Additional information on WNV and other mosquito-borne diseases can be found in the *Surveillance and Control of Mosquito-borne Diseases in Florida Guidebook*, online at http://www.doh.state.fl.us/Environment/medicine/arboviral/2009MosquitoGuide.pdf.

Disease information is also available from the Centers for Disease Control and Prevention CDC) at http://www.cdc.gov/ncidod/dvbid/westnile/index.htm.

Section 3: Summary of Foodborne Diseases

Description

Foodborne disease investigation and surveillance are essential public health activities. Globalization of the food supply, changes in individual's eating habits and behaviors, and newly emerging pathogens have increased the risk for contracting foodborne diseases. The Centers for Disease Control and Prevention (CDC) estimates foodborne diseases account for approximately 76 million illnesses, 325,000 hospitalizations, and 5,000 deaths per year in the U.S. However, only an estimated 14 million illnesses, 60,000 hospitalizations, and 1,800 deaths are accounted for by confirmed pathogens. Florida has had a unique program in place since 1994 to oversee food and waterborne disease surveillance and investigation for the state with the intent to better capture and investigate food and waterborne diseases, complaints, and outbreaks as well as to increase knowledge and prevent illness with regard to this important public health issue.

Foodborne disease outbreaks, as defined by the Florida Department of Health's Food and Waterborne Disease Program, are incidents in which two or more people have the same disease, have similar symptoms, or excrete the same pathogens; and there is a person, place, and/or time association between these people along with ingestion of a common food. A single case of suspected botulism, mushroom poisoning, ciguatera fish poisoning, paralytic shellfish poisoning, other rare disease, or a case of a disease that can be definitely related to ingestion of a food, is considered as an incident of foodborne illness and warrants further investigation.

The Florida Department of Health has criteria established for suspected and confirmed foodborne disease outbreaks. A suspected foodborne outbreak is one for which the sum of the epidemiological evidence is not strong enough to consider it a confirmed outbreak. A confirmed foodborne outbreak is an outbreak that has been thoroughly investigated and the results include strong epidemiological association of a food item or meal with illness. A thorough investigation is documented by:

- diligent case finding,
- interviewing of ill cases and well individuals,
- collecting clinical and food lab samples where appropriate and available,
- confirmation of lab samples where possible,
- field investigation of the establishment(s) concerned, and
- statistical analysis of the information collected during the investigation.

The summary report of all of the information collected in an investigation in a confirmed outbreak will indicate a strong association with a particular food and/or etiologic agent and a group of two or more people, or single incidents as described above. Similar criteria have been established for confirmed, suspected, and unknown etiology. An outbreak etiology is classified in the "confirmed" category when epidemiologic evidence implicates an agent and confirmatory laboratory data are available. An outbreak etiology is classified in the "suspected" category when epidemiologic evidence and/or a food preparation review implicate(s) an agent, but no confirmatory laboratory data are available. An outbreak etiology is classified in the "unknown" category where epidemiologic evidence clearly associates food with the outbreak, but no laboratory data are available and the epidemiologic evidence does not clearly implicate a specific agent. Data on reported number of outbreaks and reported number of cases associated with outbreaks is considered provisional until it is published in the Food and Waterborne Disease Annual Report. Numbers may change slightly from what is reported here.

Overview

In 2008, Florida reported 97 foodborne disease outbreaks with a total of 1,190 associated cases. (Table 1).

Table 1. Summary of Foodborne Disease Outbreaks, Florida, 1999-2008

Year	# Outbreaks	# Cases	Proportion of Outbreaks per 100,000 population	Proportion of Cases per 100,000 population	Average Cases per Outbreak
1999	273	1,465	1.74	9.34	5.37
2000	269	1,569	1.67	9.76	5.83
2001	288	1,922	1.75	11.71	6.67
2002	240	1,450	1.43	8.65	6.04
2003	185	1,563	1.08	9.11	8.45
2004	174	1,937	0.99	11.00	11.13
2005	128	1,944	0.71	10.79	15.19
2006	143	1,142	0.78	6.19	7.99
2007	117	827	0.62	4.42	7.07
2008	97	1,190	0.51	6.30	12.27

Foodborne disease outbreaks in Florida are classified by outbreak status (confirmed or suspected) as well as by pathogen status (confirmed, suspected, or unknown). Among the 97 reported foodborne disease outbreaks in 2008, 34 (35.05 %) were determined to be confirmed foodborne disease outbreaks accounting for 671 (56.39 %) of the 1,190 reported cases. Of the total reported outbreaks, 68 (70.10 %) had a suspected and/or confirmed etiology accounting for 811 (68.15 %) of the total cases. Of the total reported outbreaks, 29 (29.90%) had unknown etiologies accounting for 379 (31.85 %) of the total cases (Table 2).

Table 2. Total Number and Percentage of Reported Foodborne Outbreaks and Cases by Pathogen Status, Florida, 2008

	# Outbreaks	# Cases	% Outbreaks	% Cases
Suspected Outbreaks*	**63**	**519**	**64.95%**	**43.61%**
Confirmed Pathogens**	3	20	3.09%	1.68%
Suspected Pathogens**	32	129	32.99%	10.84%
Unknown Pathogens**	28	370	28.87%	31.09%
Confirmed Outbreaks*	**34**	**671**	**35.05%**	**56.39%**
Confirmed Pathogens**	27	419	27.84%	35.21%
Suspected Pathogens**	6	243	6.19%	20.42%
Unknown Pathogens**	1	9	1.03%	0.76%

*Definitions for suspected and confirmed outbreaks are described above in the “Description” section.

**Definitions for confirmed, suspected, and unknown etiology are described above in the “Description” section.

Trends

There is a general decreasing trend in the total number of reported foodborne disease outbreaks and number of reported foodborne disease outbreaks per 100,000 population in Florida over the last 10 years (Figures 1 & 2).

Figure 1. Total Number of Reported Foodborne Disease Outbreaks, Florida 1999 - 2008

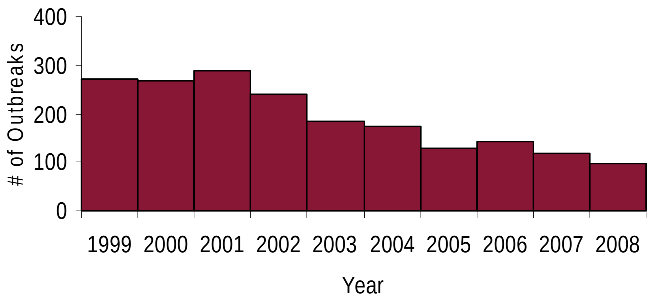
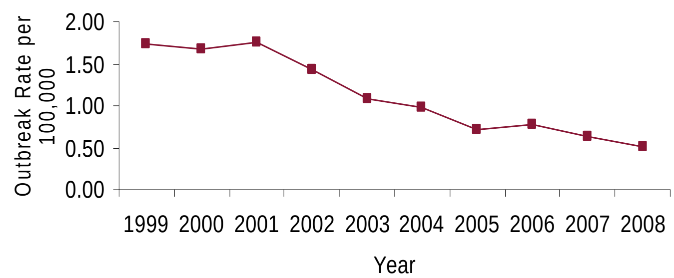


Figure 2. Number of Reported Foodborne Disease Outbreaks per 100,000 population, Florida 1999 - 2008



The total number of reported foodborne illness cases (Figure 3) and the number of reported foodborne illness cases per 100,000 population (Figure 4) in Florida has fluctuated over the last 10 years.

Figure 3. Total Number of Reported Foodborne Disease Outbreak Cases, Florida 1999 - 2008

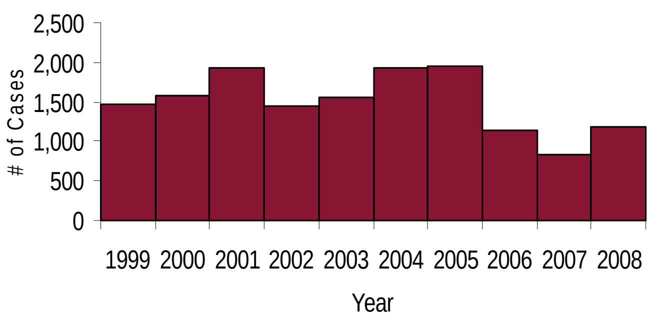
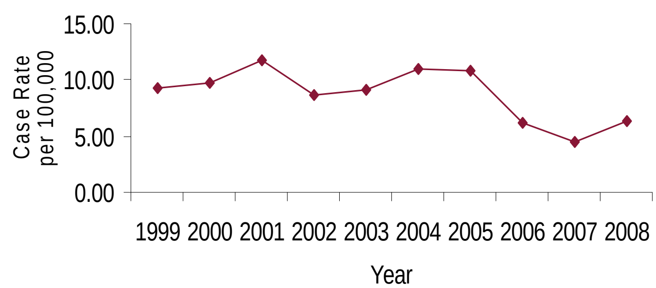


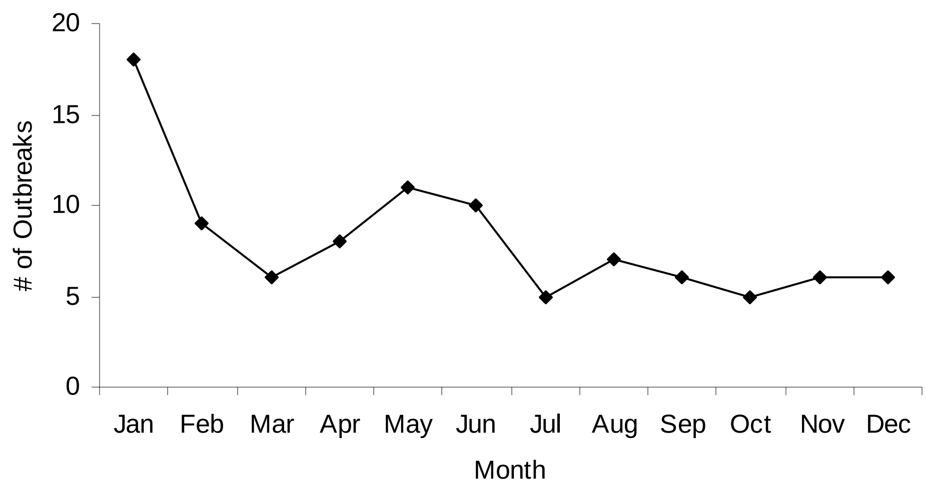
Figure 4. Number of Reported Foodborne Disease Outbreak Cases per 100,000, Florida 1999 - 2008



Seasonality

Occurrence of reported foodborne disease outbreaks in Florida for 2008 peaked in January (Figure 5).

Figure 5. Total Number of Reported Foodborne Disease Outbreaks by Month, Florida 2008



Agent

Foodborne disease outbreaks caused by bacterial (26.8%) and viral pathogens (26.8%) accounted for most of the total reported foodborne disease outbreaks with a known etiology (Figure 6). Foodborne disease outbreaks caused by viral pathogens accounted for the most reported cases (45.2%) with a known etiology (Figure 7). Pathogen type was unknown for 30.9% of the reported foodborne disease outbreaks and 32.6% of the reported cases.

Figure 6. Percentage of Reported Foodborne Disease Outbreaks by Pathogen Type, Florida 2008

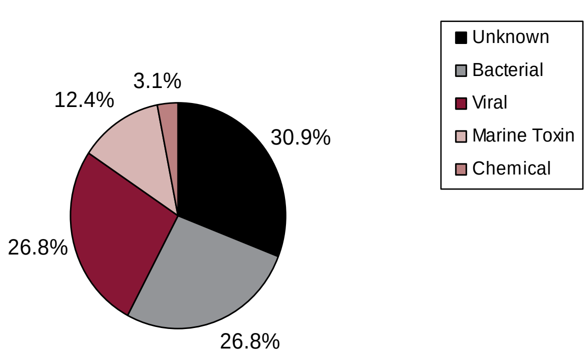
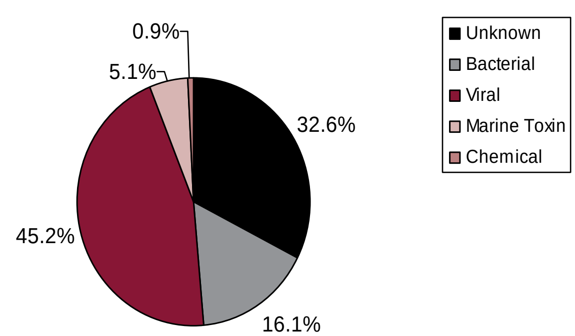


Figure 7. Percentage of Reported Foodborne Disease Outbreak Cases by Pathogen Type, Florida 2008



The number and percentage of foodborne disease outbreaks and cases by etiology for 2008 is summarized in Table 3. Among foodborne disease outbreaks with a suspected and/or confirmed etiology, Norovirus was the most frequently reported etiology for outbreaks in Florida for 2008 accounting for 26 (26.80%) outbreaks followed by ciguatera which accounted for 12 (12.37%) outbreaks. Norovirus accounted for the highest number of cases associated with reported foodborne disease outbreaks with 538 (45.21%) cases followed by *Clostridium perfringens* which accounted for 132 (11.09%) cases.

Table 3. Number and Frequency of Foodborne Outbreaks and Cases by Etiology, Florida 2008

Category	**Outbreaks**		**Cases**	
Pathogen	#	%	#	%
Unknown				
Total Unknown	30	30.93%	388	32.61%
Bacterial				
Staphylococcus	6	6.19%	22	1.85%
B. cereus	6	6.19%	14	1.18%
V. vulnificus	6	6.19%	6	0.50%
Salmonella	3	3.09%	9	0.76%
C. perfringens	2	2.06%	132	11.09%
E. coli O157:H7	2	2.06%	7	0.59%
Campylobacter	1	1.03%	2	0.17%
Total Bacterial	26	26.80%	192	16.13%
Viral				
Norovirus	26	26.80%	538	45.21%
Marine Toxins				
Ciguatera	12	12.37%	61	5.13%
Other				
Chemical	3	3.09%	11	0.92%
Total	**97**	**100.00%**	**1,190**	**100.00%**

Implicated Food Vehicles

Multiple ingredients, multiple items, and poultry were the most frequently reported general vehicles contributing to foodborne disease outbreaks in Florida for 2008 (Table 4).

Table 4. Foodborne Illness Outbreaks and Cases by General Vehicle, Florida 2008

General Vehicle	# Outbreaks	% Outbreaks	# Cases	% Cases
Multiple Ingredients*	18	18.56%	101	8.49%
Multiple Items**	18	18.56%	151	12.69%
Poultry	13	13.40%	187	15.71%
Fish	12	12.37%	61	5.13%
Unknown	9	9.28%	406	34.12%
Shellfish-Molluscan	5	5.15%	5	0.42%
Beef	4	4.12%	42	3.53%
Pork	4	4.12%	28	2.35%
Produce-Vegetable	4	4.12%	149	12.52%
Beverage	3	3.09%	41	3.45%
Ice	2	2.06%	8	0.67%
Rice	2	2.06%	4	0.34%
Dairy	1	1.03%	2	0.17%
Pizza	1	1.03%	4	0.34%
Shellfish-Crustacean	1	1.03%	1	0.08%
Total	**97**	**100.00%**	**1,190**	**100.00%**

*****Multiple Ingredients are food vehicles in which several foods are combined during preparation or cooking and the entire food product is suspected or confirmed to be contaminated (e.g. casseroles, soups, sandwiches, salads, etc.).
******Multiple Items are food vehicles in which several foods are individually prepared or cooked and more than one food is suspected or confirmed to be contaminated (e.g. buffet, salad bar, chicken and shrimp, etc.).

Outbreak Location

Most of the reported foodborne disease outbreaks (67.01%) and cases (35.71%) were associated with restaurants (Table 5).

Table 5. Foodborne Illness Outbreaks and Cases by Site Florida 2008

Site	# Outbreaks	% Outbreaks	# Cases	% Cases
Restaurant	65	67.01%	425	35.71%
Caterer	8	8.25%	256	21.51%
Home	8	8.25%	51	4.29%
Grocery	6	6.19%	26	2.18%
Recreational Fishing	2	2.06%	2	0.17%
Assisted Living Facility	1	1.03%	4	0.34%
Little League Park	1	1.03%	3	0.25%
Movie Theater	1	1.03%	7	0.59%
Nursing Home	1	1.03%	9	0.76%
Prison	1	1.03%	260	21.85%
Resort Hotel	1	1.03%	39	3.28%
School	1	1.03%	33	2.77%
Sorority House	1	1.03%	75	6.30%
Total	**97**	**100.00%**	**1,190**	**100.00%**

Contributing Factors

The current systematic data collection regarding contributing factors associated with reported foodborne disease outbreaks began in 2000. The top contributing factors associated with reported foodborne disease outbreaks in Florida for 2008 were associated with time/temperature abuse, poor personal hygiene, and cross contamination (Table 6, 7, 8). Note: There are three categories of contributing factors (contamination factor, proliferation factor, survival factor) and up to three contributing factors per category can be attributed in an outbreak; therefore, the reported numbers may not match the actual number of reported outbreaks and cases.

Table 6. Most Common Reported Foodborne Contamination Factors, Florida 2008

Contamination Factor	# Outbreaks	# Cases
Bare-Handed Contact	20	126
Infected Person or Carrier	15	360
Toxic Substance	11	55
Cross Contamination from Raw Ingredients Animal Origin	10	25
Inadequate Cleaning	9	158

Table 7. Most Common Reported Foodborne Proliferation Factors, Florida 2008

Proliferation Factor	# Outbreaks	# Cases
Inadequate Cold-Holding Temperature	13	40
Slow Cooling	8	150
Insufficient Time/ Temperature Hot Holding	7	143
Room Temperature	2	13
Pooled Raw Eggs	1	5

Table 8. Most Common Reported Foodborne Survival Factors, Florida 2008

Survival Factor	# Outbreaks	# Cases
Insufficient Time/ Temperature During Cooking/ Processing	3	136
Improper Sanitization	2	5
Insufficient Time/ Temperature During Reheating	2	4
Insufficient Thawing Then Insufficient Cooking	1	2
Temperature Control	1	5

References

Bender JB, et al., "Foodborne disease in the 21st century: What challenges await us?" *Postgraduate Medicine*, Vol. 106, No. 2, 1999, pp. 106-119.

Mead PS, et al., "Food-related illness and death in the United States." *Emerging Infectious Diseases*, Vol. 5, No. 5, 1999, pp. 607-625.

Florida Department of Health Memorandum, July 17, 1995. Criteria for Confirmation of a Foodborne Outbreak.

Section 4: Summary of Antimicrobial Resistance Surveillance

Background

Some scientists consider antibiotics to be the single most impressive medical achievement of the 20th Century. However, the continuing emergence and spread of antimicrobial resistance jeopardizes the utility of antibiotics and threatens public health globally. These pathogens are associated with increased morbidity and mortality, which not only impacts patients but also increases the burden on healthcare services as a result of additional diagnostic testing, prolonged hospital stays, and increased intensity and duration of treatment.

The purpose of the antimicrobial resistance surveillance in Florida is to maintain a statewide surveillance and information system that provides data on the incidence and spread of major invasive bacteria with clinically and epidemiologically relevant antimicrobial resistance. Describing the distribution of infection due to resistant organisms within populations, together with changes in patterns of those infections over time, provides the basic information for action both to control disease caused by resistant microorganisms and to contain the emergence of resistance. Strategies to protect the public's health can be developed and evaluated on the basis of this surveillance information.

Currently, *Streptococcus pneumoniae* is the only disease on Florida's list of notifiable diseases for which drug susceptibilities are required as part of case reporting. Drug-resistant *S. pneumoniae* (DRSP) invasive disease was added to Florida's list of notifiable diseases in mid-1996. Drug-susceptible *S. pneumonia* (DSSP) invasive disease was added to the list of notifiable diseases mid-1999, to permit the assessment of the proportion of pneumococcal isolates that are drug-resistant. These data are currently captured and stored electronically in the Merlin database, though DSSP data wasn't captured electronically until 2003. The rise of antibiotic resistance among isolates of *S. pneumoniae* and the severity of disease it causes highlight the importance of monitoring trends to aid in developing effective treatment and intervention strategies.

Data Trends

There were a total of 704 DSSP cases and 792 DRSP cases in 2008. Of the 704 DSSP cases, 13 did not have antibiotic susceptibility data because the patient died and further testing was not done. Those 13 cases are excluded from this section. Additionally, it should be noted that not every antibiotic was tested for every case. When calculating percentages for each antibiotic, the denominator is the number of cases that were tested for that antibiotic. Resistant and intermediate susceptibilities were grouped together as "resistant" for this summary.

With the steady rise of antimicrobial resistance among strains of *S. pneumoniae* in the past decade, it is now more important than ever for physicians to prescribe proper antimicrobial therapy. Where penicillin was previously the drug of choice for all pneumococcal infections, 40.8% of the cases tested in Florida in 2008 were resistant to penicillin (see Figure 1 and Table 1). Resistance was most common for erythromycin, with 47.0% of isolates tested showing resistance or intermediate susceptibility. Seven of the antibiotics tracked (azithromycin, cefuroxime axetil, clarithromycin, erythromycin, penicillin, tetracycline, and trimethoprim/sulfamethoxazole) had greater than 25% resistance. Vancomycin and rifampin had the lowest resistance, at 0.1% and 0.9% respectively.

Figure 1. *Streptococcus pneumoniae*, Invasive Disease, Antibiotic Resistance, Florida, 2008

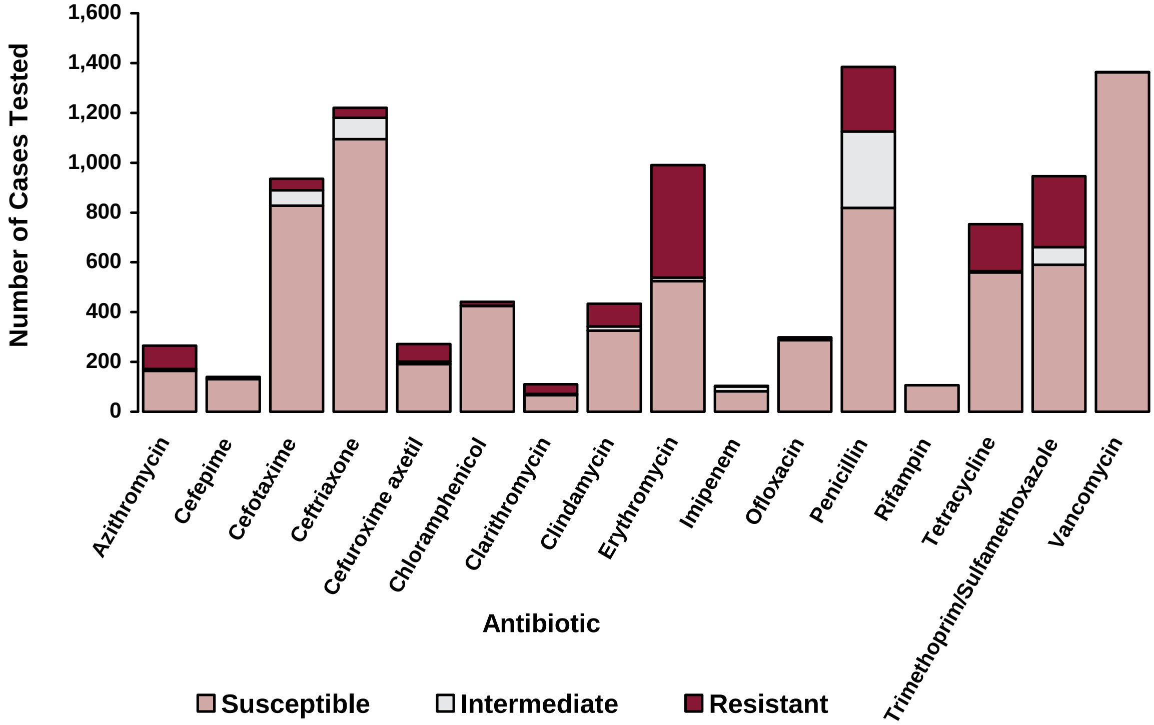


Table 1. *Streptococcus pneumoniae*, Invasive Disease, Antibiotic Resistance, Florida 2008

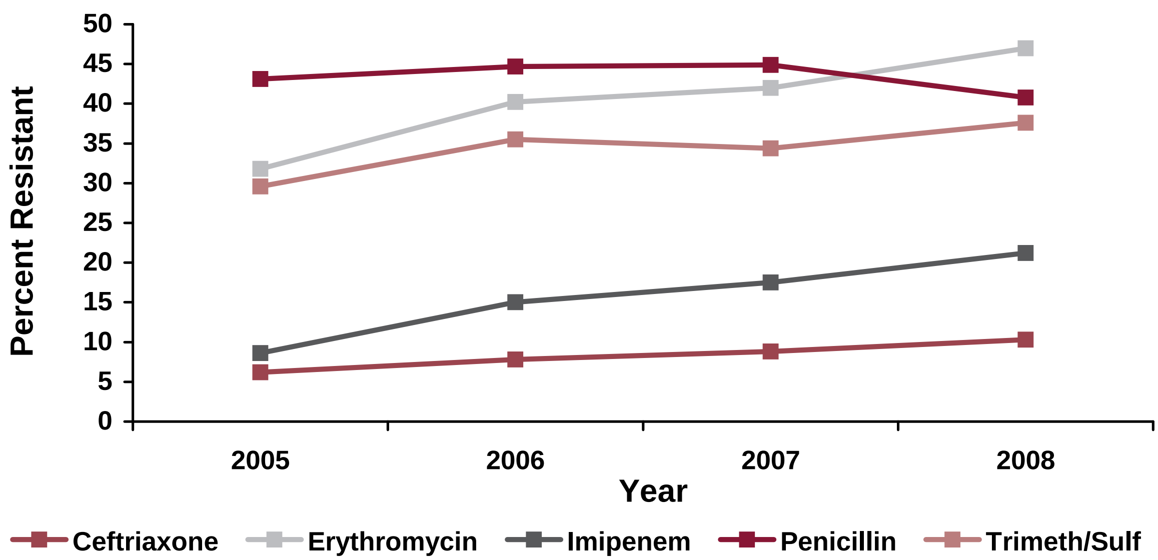
Antibiotic name	Number of Cases Tested	Susceptible	Intermediate	Resistant
Azithromycin	265	61.9%	3.0%	35.1%
Cefepime	140	93.6%	6.4%	0.0%
Cefotaxime	935	88.6%	6.5%	4.9%
Ceftriaxone	1,220	89.7%	7.0%	3.3%
Cefuroxime axetil	272	70.2%	4.0%	25.7%
Chloramphenicol	441	96.4%	0.2%	3.4%
Clarithromycin	110	60.9%	4.5%	34.5%
Clindamycin	434	75.1%	3.9%	21.0%
Erythromycin	991	53.0%	1.4%	45.6%
Imipenem	104	78.8%	18.3%	2.9%
Ofloxacin	299	96.3%	2.7%	1.0%
Penicillin	1,384	59.2%	22.1%	18.7%
Rifampin	107	99.1%	0.0%	0.9%
Tetracycline	753	74.4%	0.7%	25.0%
Trimethoprim/Sulfamethoxazole	947	62.3%	7.5%	30.1%
Vancomycin	1,364	99.9%	0.0%	0.1%

The prevalence of resistance increased for most antibiotics overall from 2005 to 2008, though decreased for a few antibiotics (see Table 2 and Figure 2). Antibiotics with steady increases in resistance include ceftriaxone, clindamycin, erythromycin, imipenem, and tetracycline. Resistance to the remaining antibiotics fluctuated over the years. Overall increases were seen for azithromycin, cefotaxime, cefuroxime axetil, clarithromycin, rifampin, and trimethoprim/sulfamethoxazole. Overall decreases were seen for cefepime, chloramphenicol, ofloxacin, and penicillin. Note that ceftriaxone, erythromycin, imipenem, penicillin, and trimethoprim/sulfamethoxazole are highlighted in Table 2 and are presented in Figure 2. These antibiotics were chosen because they represent most of the major antibiotic classes.

Table 2. *Streptococcus pneumoniae*, Invasive Disease, Percent Resistant to Antibiotics, Florida 2005-2008

Antibiotic name	2005	2006	2007	2008
Azithromycin	30.6%	45.4%	44.3%	38.1%
Cefepime	9.2%	14.1%	10.2%	6.4%
Cefotaxime	8.6%	8.0%	11.3%	11.4%
Ceftriaxone	6.2%	7.8%	8.8%	10.3%
Cefuroxime axetil	22.1%	29.3%	30.8%	29.7%
Chloramphenicol	4.4%	2.8%	4.7%	3.6%
Clarithromycin	30.9%	36.9%	51.1%	39.0%
Clindamycin	16.2%	20.2%	23.4%	24.9%
Erythromycin	31.8%	40.2%	42.0%	47.0%
Imipenem	8.6%	15.0%	17.5%	21.2%
Ofloxacin	4.4%	5.2%	2.9%	3.7%
Penicillin	43.1%	44.7%	44.9%	40.8%
Rifampin	0.0%	0.6%	0.0%	0.9%
Tetracycline	16.1%	16.6%	21.2%	25.7%
Trimethoprim/Sulfamethoxazole	29.6%	35.5%	34.4%	37.6%
Vancomycin	0.1%	0.8%	0.3%	0.1%

Figure 2. *Streptococcus pneumoniae*, Invasive Disease,
Percent Resistant to Select Antibiotics, Florida 2005-2008



In general, the prevalence of resistance to antibiotics is highest in the very young, followed by the elderly, and lowest in the middle aged (see Table 3). For example, 66.7% of the cases tested for imipenem in those less than one year old were resistant, compared to 6.4% in those 25 to 64 years old, and 8.7% in those 65 and older. Overall, the highest rate of resistance was seen in erythromycin; 62.3% of cases one to four years old were resistant while only 46.7% of cases 65 and older were resistant.

Table 3. *Streptococcus pneumoniae*, Invasive Disease, Percent Resistant to Antibiotics by Age Category, Florida 2008																	
Age	Number of Cases	Azithromycin	Cefepime	Cefotaxime	**Ceftriaxone**	Cefuroxime axetil	Chloramphenicol	Clarithromycin	Clindamycin	**Erythromycin**	**Imipenem**	Ofloxacin	**Penicillin**	Rifampin	Tetracycline	**Trimethoprim/ Sulfamethoxazole**	Vancomycin
<1	67	50.0%	14.3%	23.9%	19.6%	64.7%	0.0%	33.3%	34.8%	50.0%	66.7%	0.0%	64.6%	0.0%	34.5%	64.1%	0.0%
1-4	163	63.0%	20.0%	23.2%	22.7%	51.5%	4.0%	53.8%	39.0%	62.3%	53.0%	3.2%	58.8%	4.2%	46.0%	60.6%	0.0%
5-14	53	50.0%	0.0%	10.2%	6.8%	6.2%	0.0%	66.7%	21.4%	44.8%	0.0%	0.0%	44.0%	0.0%	23.8%	52.0%	0.0%
15-24	32	50.0%	-	6.7%	3.6%	-	10.0%	0.0%	28.6%	36.0%	-	0.0%	38.8%	0.0%	22.2%	25.0%	0.0%
25-64	716	28.5%	5.3%	11.1%	8.2%	25.4%	2.9%	25.4%	23.7%	44.4%	6.4%	2.2%	37.2%	0.0%	22.3%	35.3%	0.2%
65+	452	43.8%	2.8%	5.7%	8.9%	24.4%	5.0%	54.3%	17.7%	46.7%	8.7%	7.4%	36.1%	0.0%	23.8%	30.1%	0.0%
Total	1483	38.1%	6.4%	11.4%	10.3%	29.8%	3.6%	39.1%	24.9%	47.0%	21.2%	3.7%	40.8%	0.9%	25.6%	37.6%	0.1%

Resistance patterns were also summarized by region and county. The Regional Domestic Security Task Force regions were used, as depicted in Figure 3.

Figure 3. Regional Domestic Security Task Force Regions

The East Central Region of Florida had 254 (17.1%) of the 1,483 cases included in this summary (Figure 4 and Table 4). Only one case was tested for imipenem resistance, and this case was resistant. Two cases were tested for clarithromycin, and one of these cases was resistant. The small denominators for these antibiotics make the resistance percentages misleading. Excluding these antibiotics, the highest rate of resistance was seen in erythromycin (50.8%). Tetracycline, penicillin, trimethoprim/sulfamethoxazole, cefuroxime axetil, azithromycin, and erythromycin all had resistance rates greater than 25.0%.

The North Central Region of Florida had 37 (2.5%) of the 1,483 cases included in this summary (Figure 5 and Table 4). One case was tested for imipenem resistance; two cases were tested for azithromycin, cefepime, chloramphenicol, and ofloxacin resistance; and six cases were tested for cefuroxime axetil resistance. The small denominators for these antibiotics make the resistance percentages misleading. Excluding these antibiotics, the highest rate of resistance was seen in penicillin (40.0%), followed by erythromycin (35.5%). Tetracycline, trimethoprim/sulfamethoxazole, erythromycin, and penicillin all had resistance rates greater than 25.0%.

The North East Region of Florida had 198 (13.4%) of the 1,483 cases included in this summary (Figure 6 and Table 4). Only three cases were tested for imipenem, making the resistance percentage misleading due to the small denominator. Penicillin had the highest resistance rate (42.2%) followed by erythromycin (41.1%) and azithromycin (40.0%). Clindamycin, trimethoprim/sulfamethoxazole, azithromycin, erythromycin, and penicillin all had resistance rates greater than 25.0%.

The North West Region of Florida had 137 (9.2%) of the 1,483 cases included in this summary (Figure 7 and Table 4). Only one case was tested for rifampin resistance, making the resistance percentage misleading due to the small denominator. Penicillin had the greatest resistance rate (30.0%) followed by trimethoprim/sulfamethoxazole (26.3%). These were the only two antibiotics with resistance rates greater than 25.0%.

The South East Region of Florida had 445 (30.0%) of the 1,483 cases included in this summary (Figure 8 and Table 4). Clarithromycin had the greatest resistance rate (52.6%), though only 19 cases reported clarithromycin susceptibility results. Erythromycin had the next highest resistance rate (48.8%) and also had a large denominator. Clindamycin, trimethoprim/sulfamethoxazole, penicillin, cefuroxime axetil, imipenem, azithromycin, erythromycin, and clarithromycin all had resistance rates greater than 25.0%.

The South West Region of Florida had 127 (8.6%) of the 1,483 cases included in this summary (Figure 9 and Table 4). Susceptibility data for several antibiotics in this region were rarely reported: rifampin (1 case), imipenem (4 cases), cefepime (5 cases), cefuroxime axetil (7 cases), clarithromycin (8 cases), and azithromycin (10 cases). The small denominators for these antibiotics make the resistance percentages misleading. Excluding these antibiotics, the highest rate of resistance was seen in erythromycin (56.1%), followed by penicillin (44.8%). Clindamycin, trimethoprim/sulfamethoxazole, penicillin, and erythromycin all had resistance rates greater than 25.0%.

The West Central Region of Florida had 285 (19.2%) of the 1,483 cases included in this summary (Figure 10 and Table 4). Erythromycin had the greatest resistance rate (51.0%), followed by clarithromycin (50.0%). Clindamycin, tetracycline, cefuroxime axetil, trimethoprim/sulfamethoxazole, penicillin, azithromycin, clarithromycin, and erythromycin all had resistance rates greater than 25.0%.

Resistance rates by county are presented in Table 5.

Figure 4. *Streptococcus pneumoniae*, Invasive Disease,
Antibiotic Resistance, East Central Region of Florida, 2008

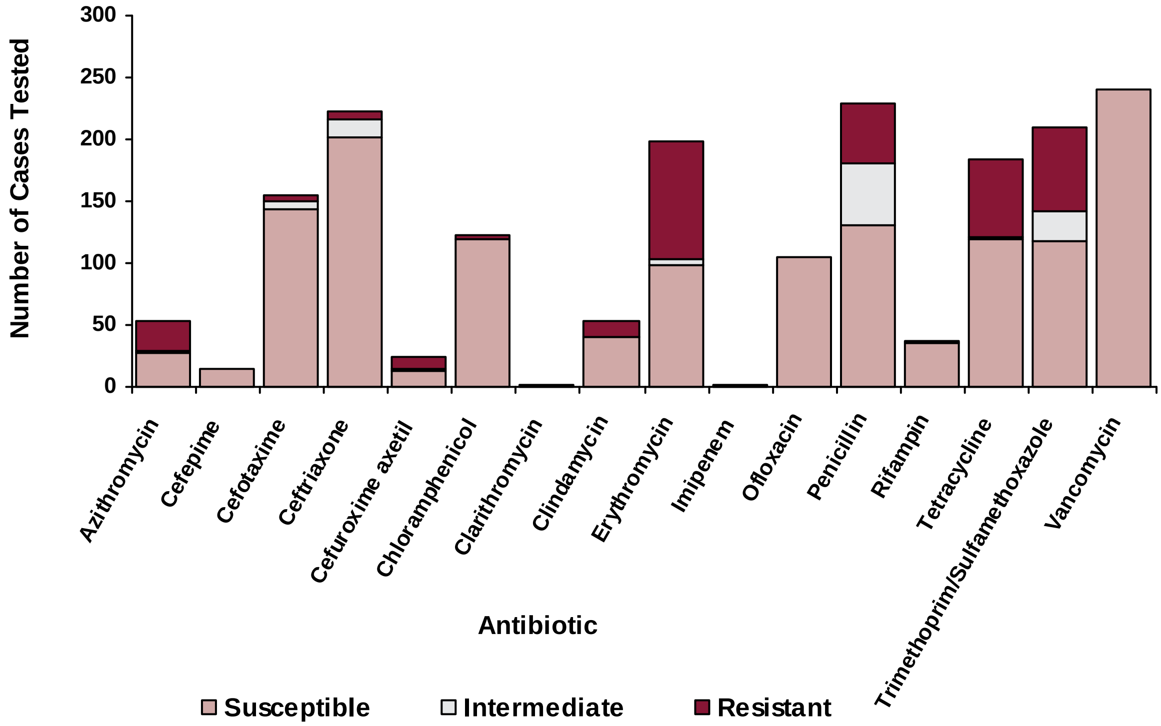


Figure 5. *Streptococcus pneumoniae*, Invasive Disease,
Antibiotic Resistance, North Central Region of Florida, 2008

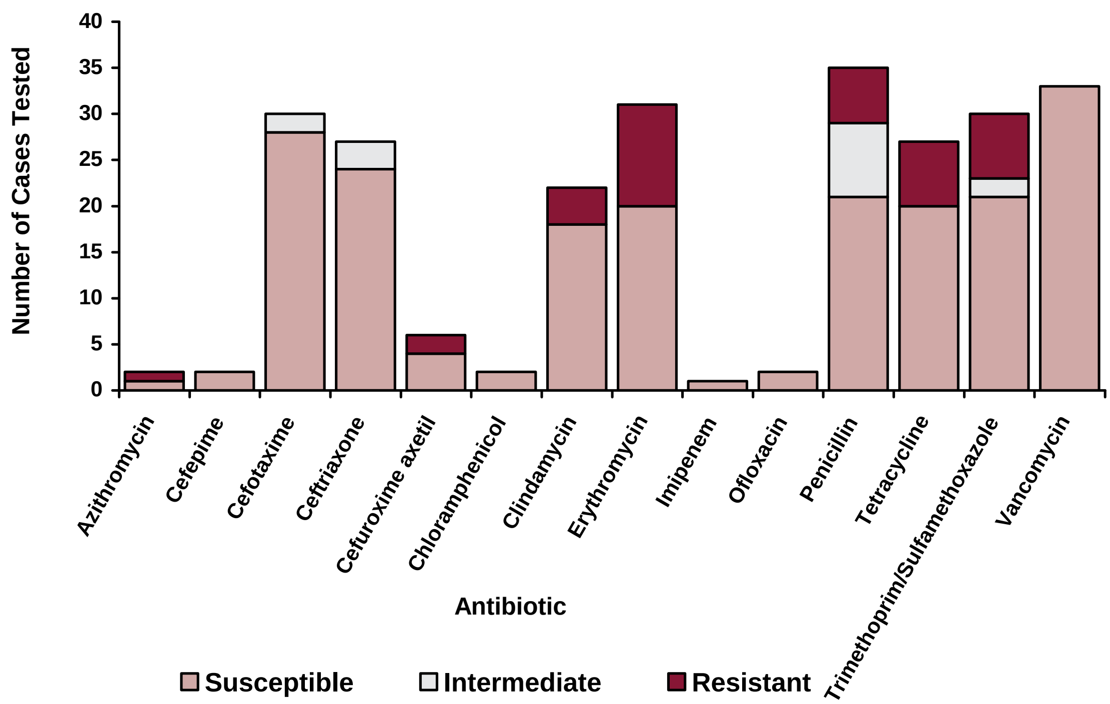


Figure 6. *Streptococcus pneumoniae*, Invasive Disease,
Antibiotic Resistance, North East Region of Florida, 2008

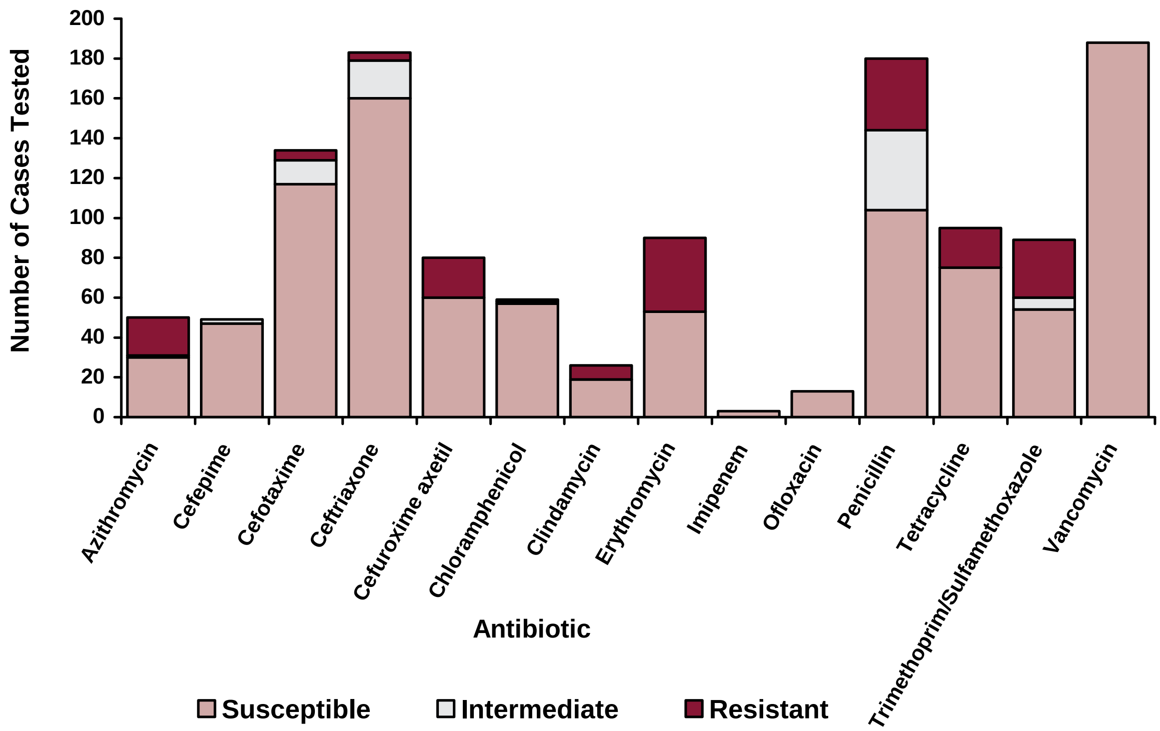


Figure 7. *Streptococcus pneumoniae*, Invasive Disease,
Antibiotic Resistance, North West Region of Florida, 2008

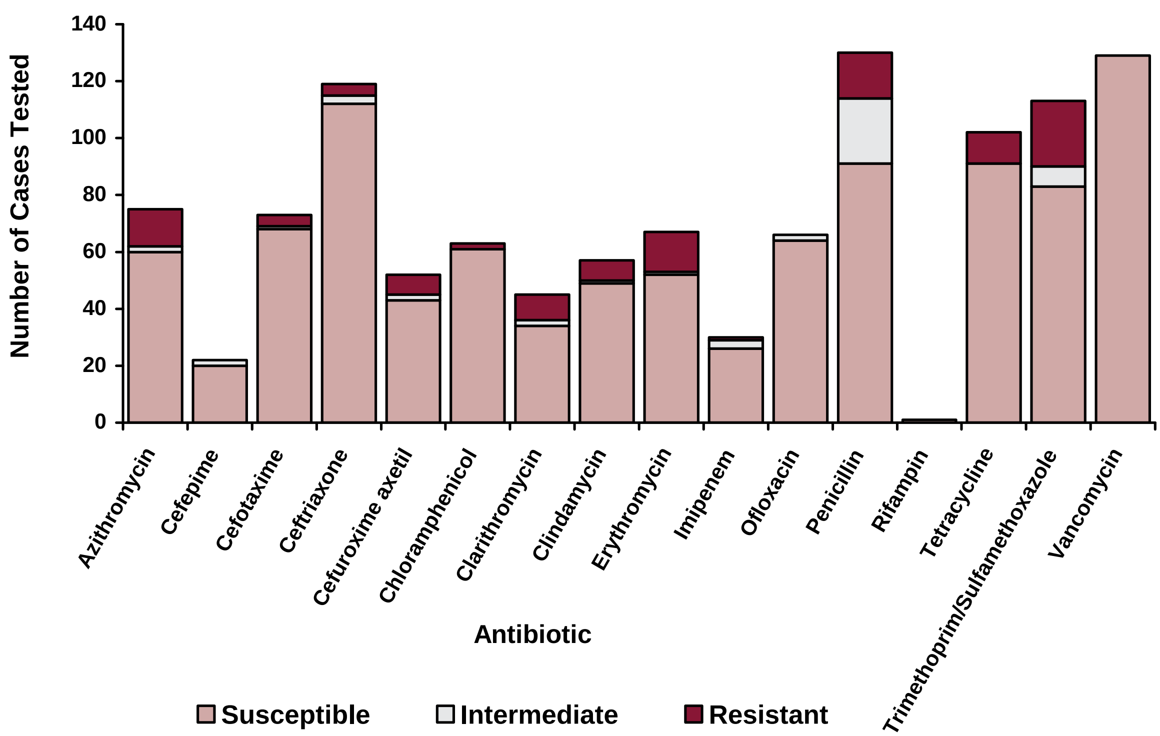


Figure 8. *Streptococcus pneumoniae*, Invasive Disease, Antibiotic Resistance, South East Region of Florida, 2008

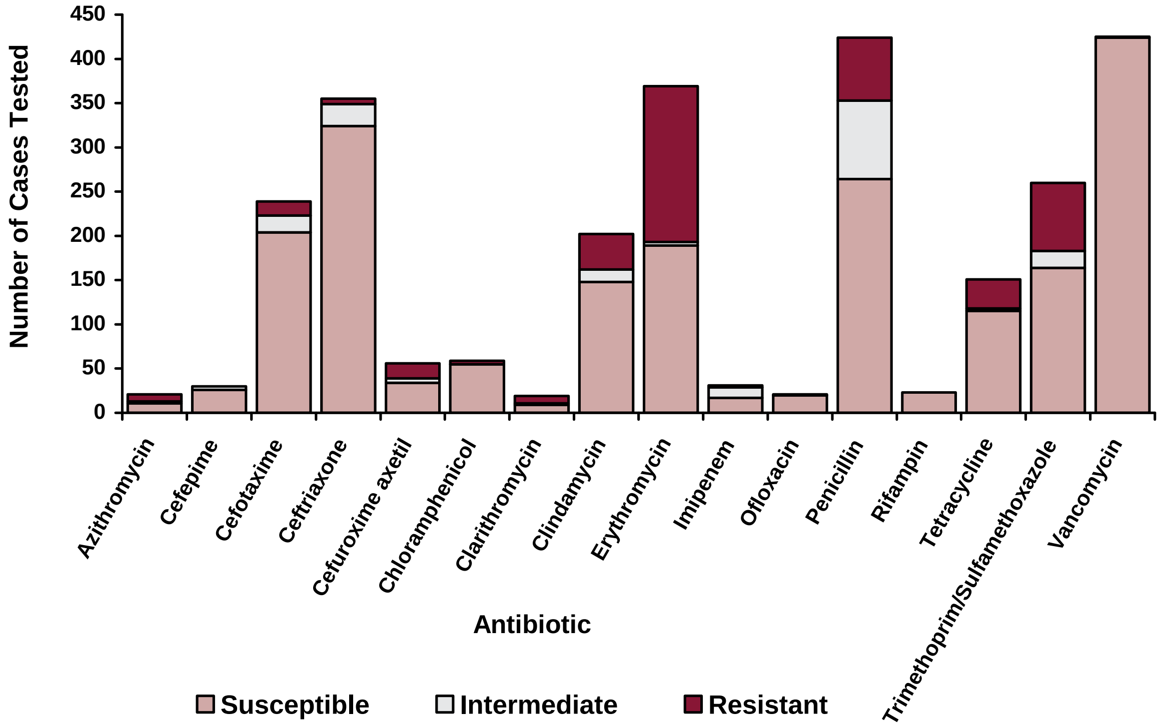


Figure 9. *Streptococcus pneumoniae*, Invasive Disease, Antibiotic Resistance, South West Region of Florida, 2008

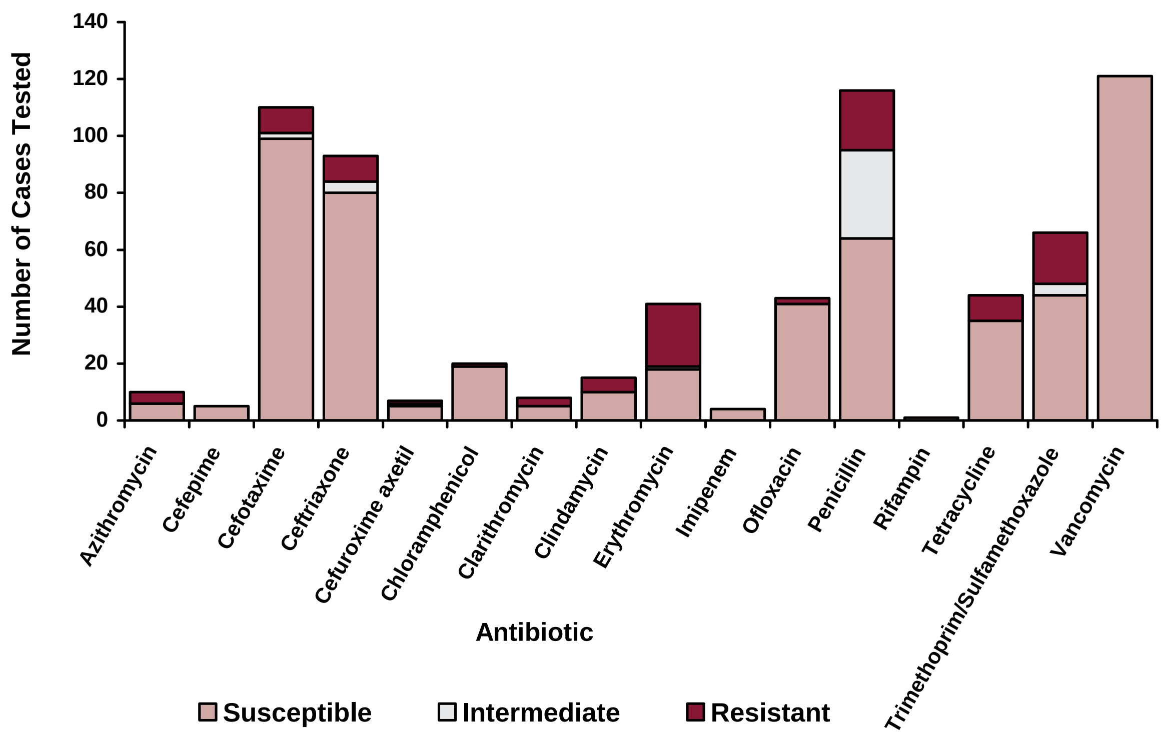


Figure 10. *Streptococcus pneumoniae*, Invasive Disease, Antibiotic Resistance, West Central Region of Florida, 2008

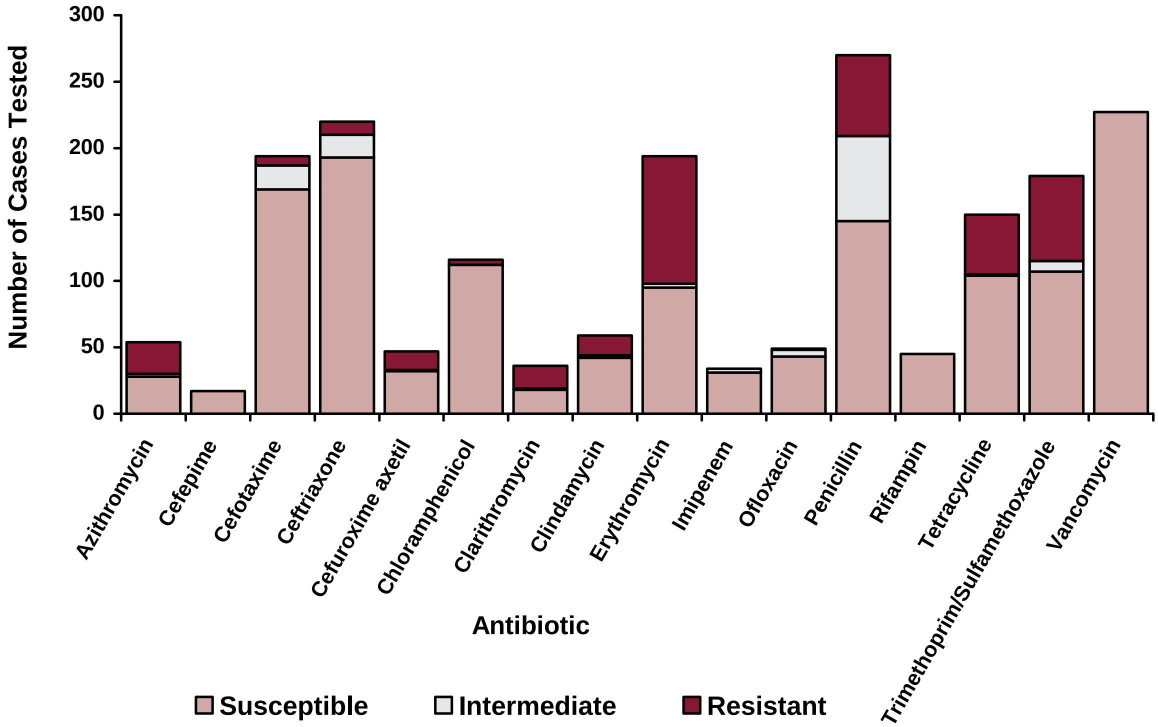


Table 4. *Streptococcus pneumoniae*, Invasive Disease, Percent Resistant to Antibiotics by Region, Florida 2008

Region	Number of Cases	Azithromycin	Cefepime	Cefotaxime	**Ceftriaxone**	Cefuroxime axetil	Chloramphenicol	Clarithromycin	Clindamycin	**Erythromycin**	**Imipenem**	Ofloxacin	**Penicillin**	Rifampin	Tetracycline	**Trimethoprim/ Sulfamethoxazole**	Vancomycin
East Central	254	47.2%	6.7%	7.7%	9.8%	45.8%	2.5%	50.0%	24.5%	50.7%	100.0%	0.0%	43.3%	2.7%	34.7%	44.1%	0.0%
North Central	37	50.0%	0.0%	6.7%	11.1%	33.3%	0.0%	-	18.2%	35.5%	0.0%	0.0%	40.0%	-	25.9%	30.0%	0.0%
North East	198	40.0%	4.1%	12.7%	12.6%	25.0%	3.4%	-	26.9%	41.1%	0.0%	0.0%	42.2%	-	21.1%	39.3%	0.0%
North West	137	20.0%	9.1%	6.9%	5.9%	17.3%	3.2%	24.4%	14.1%	22.4%	13.3%	3.0%	30.0%	0.0%	10.8%	26.3%	0.0%
South East	445	47.6%	13.3%	14.6%	8.7%	39.3%	6.8%	52.6%	26.7%	48.8%	45.2%	4.8%	37.7%	0.0%	23.9%	36.9%	0.2%
South West	127	40.0%	0.0%	10.0%	14.0%	28.6%	5.0%	37.5%	33.3%	56.1%	0.0%	4.7%	44.8%	0.0%	20.5%	33.4%	0.0%
West Central	285	48.1%	0.0%	12.9%	12.2%	31.9%	3.4%	50.0%	28.8%	51.0%	8.8%	12.2%	46.3%	0.0%	30.7%	40.3%	0.0%
Total	1483	38.1%	6.4%	11.4%	10.3%	29.8%	3.6%	39.1%	24.9%	47.0%	21.2%	3.7%	40.8%	0.9%	25.6%	37.6%	0.1%

Table 5. *Streptococcus pneumoniae*, Invasive Disease, Percent Resistant to Antibiotics by County, Florida 2008

County	Number of Cases	Azithromycin	Cefepime	Cefotaxime	**Ceftriaxone**	Cefuroxime axetil	Chloramphenicol	Clarithromycin	Clindamycin	**Erythromycin**	**Imipenem**	Ofloxacin	**Penicillin**	Rifampin	Tetracycline	**Trimethoprim/ Sulfamethoxazole**	Vancomycin
Alachua	23	14.3%	0.0%	12.5%	14.3%	19.0%	14.3%	-	-	12.5%	-	0.0%	28.6%	-	25.0%	12.5%	0.0%
Baker	2	0.0%	0.0%	0.0%	0.0%	-	0.0%	-	0.0%	0.0%	-	-	0.0%	-	0.0%	0.0%	0.0%
Bay	21	-	-	33.3%	18.2%	37.5%	0.0%	100.0%	100.0%	-	-	0.0%	52.4%	-	30.0%	45.0%	0.0%
Bradford	3	-	-	-	0.0%	50.0%	-	-	-	-	-	-	0.0%	-	-	-	0.0%
Brevard	55	41.2%	0.0%	0.0%	5.8%	0.0%	3.2%	0.0%	20.0%	46.6%	-	-	50.0%	0.0%	33.3%	41.8%	0.0%
Broward	140	0.0%	20.0%	10.7%	7.7%	50.0%	0.0%	0.0%	18.9%	48.9%	0.0%	0.0%	27.8%	-	13.2%	34.3%	0.0%
Charlotte	3	-	-	0.0%	0.0%	-	0.0%	-	100.0%	100.0%	-	33.3%	50.0%	0.0%	50.0%	50.0%	0.0%
Citrus	11	-	0.0%	33.3%	27.3%	75.0%	-	-	14.3%	55.6%	-	0.0%	81.9%	-	28.6%	42.9%	0.0%
Clay	22	33.3%	0.0%	33.3%	28.6%	0.0%	0.0%	-	0.0%	33.3%	-	-	52.4%	-	33.3%	25.0%	0.0%
Collier	17	-	0.0%	0.0%	17.6%	0.0%	-	-	-	75.0%	-	7.7%	47.0%	-	13.3%	40.0%	0.0%

Table 5. *Streptococcus pneumoniae*, Invasive Disease, Percent Resistant to Antibiotics by County, Florida 2008

County	Number of Cases	Azithromycin	Cefepime	Cefotaxime	**Ceftriaxone**	Cefuroxime axetil	Chloramphenicol	Clarithromycin	Clindamycin	**Erythromycin**	**Imipenem**	Ofloxacin	**Penicillin**	Rifampin	Tetracycline	**Trimethoprim/ Sulfamethoxazole**	Vancomycin
Columbia	7	-	-	25.0%	0.0%	0.0%	-	-	-	50.0%	-	-	28.6%	-	50.0%	25.0%	0.0%
Dade	205	37.5%	25.0%	20.2%	12.2%	61.5%	10.3%	42.9%	39.8%	47.2%	48.1%	20.0%	46.7%	0.0%	40.5%	36.6%	0.5%
Dixie	2	50.0%	0.0%	0.0%	50.0%	100.0%	0.0%	-	-	50.0%	-	-	100.0%	-	50.0%	50.0%	0.0%
Duval	87	57.1%	6.2%	11.6%	11.7%	31.8%	0.0%	-	42.9%	45.7%	0.0%	0.0%	45.7%	-	25.0%	42.5%	0.0%
Escambia	63	23.3%	25.0%	5.4%	3.4%	16.7%	4.0%	23.1%	8.8%	33.3%	20.0%	8.7%	27.6%	-	10.0%	28.3%	0.0%
Flagler	6	-	-	20.0%	16.7%	-	-	-	-	100.0%	-	-	100.0%	-	0.0%	60.0%	0.0%
Gadsden	2	-	-	0.0%	0.0%	0.0%	-	-	0.0%	0.0%	-	-	0.0%	-	0.0%	0.0%	0.0%
Gilchrist	3	50.0%	0.0%	0.0%	0.0%	33.3%	0.0%	-	-	100.0%	-	-	33.3%	-	0.0%	100.0%	0.0%
Glades	1	-	-	0.0%	0.0%	-	-	-	-	-	-	0.0%	-	-	-	-	0.0%
Gulf	3	-	-	-	0.0%	0.0%	-	-	-	-	-	-	33.3%	-	-	0.0%	0.0%
Hamilton	3	-	-	0.0%	0.0%	-	-	-	-	100.0%	0.0%	-	50.0%	-	-	0.0%	0.0%
Hardee	2	100.0%	-	0.0%	0.0%	-	0.0%	-	-	100.0%	-	0.0%	100.0%	-	50.0%	100.0%	0.0%
Hendry	1	-	-	0.0%	0.0%	-	-	-	-	-	-	0.0%	0.0%	-	100.0%	0.0%	0.0%
Hernando	23	54.6%	0.0%	30.8%	16.7%	33.3%	-	-	0.0%	40.0%	-	-	42.1%	-	29.4%	15.4%	0.0%
Highlands	10	37.5%	0.0%	20.0%	20.0%	100.0%	0.0%	37.5%	100.0%	50.0%	0.0%	0.0%	66.6%	-	11.1%	22.2%	0.0%
Hillsborough	82	52.7%	-	10.2%	11.5%	22.2%	4.3%	52.7%	29.3%	66.1%	10.7%	19.1%	51.8%	0.0%	34.8%	45.2%	0.0%
Holmes	1	-	-	0.0%	0.0%	-	-	-	-	0.0%	-	-	0.0%	-	0.0%	0.0%	0.0%
Indian River	2	-	-	-	0.0%	-	-	-	0.0%	0.0%	-	-	0.0%	-	-	-	0.0%
Jackson	10	22.2%	11.1%	11.1%	10.0%	20.0%	-	-	33.3%	20.0%	50.0%	0.0%	30.0%	-	11.1%	22.2%	0.0%
Jefferson	3	-	-	0.0%	0.0%	-	-	-	33.3%	33.3%	-	-	100.0%	-	33.3%	0.0%	0.0%
Lafayette	1	-	-	0.0%	-	-	-	-	0.0%	0.0%	-	-	0.0%	-	0.0%	0.0%	0.0%
Lake	29	100.0%	0.0%	4.0%	7.4%	100.0%	0.0%	100.0%	0.0%	54.6%	-	0.0%	46.4%	-	41.4%	51.7%	0.0%
Lee	47	-	0.0%	13.1%	15.5%	0.0%	-	-	0.0%	50.0%	0.0%	0.0%	45.5%	-	20.0%	20.0%	0.0%
Leon	15	-	-	0.0%	12.5%	-	-	-	14.3%	33.3%	-	-	40.0%	-	14.3%	40.0%	0.0%
Manatee	26	-	0.0%	4.2%	0.0%	50.0%	12.5%	-	25.0%	60.0%	-	0.0%	36.0%	-	25.0%	28.5%	0.0%
Marion	32	40.9%	5.3%	10.7%	12.9%	29.2%	4.3%	-	14.3%	48.0%	-	0.0%	40.0%	-	20.7%	40.7%	0.0%
Martin	6	-	-	0.0%	0.0%	0.0%	-	-	-	33.3%	-	0.0%	16.7%	-	0.0%	0.0%	0.0%

Table 5. *Streptococcus pneumoniae*, Invasive Disease, Percent Resistant to Antibiotics by County, Florida 2008

County	Number of Cases	Azithromycin	Cefepime	Cefotaxime	**Ceftriaxone**	Cefuroxime axetil	Chloramphenicol	Clarithromycin	Clindamycin	**Erythromycin**	**Imipenem**	Ofloxacin	**Penicillin**	Rifampin	Tetracycline	**Trimethoprim/ Sulfamethoxazole**	Vancomycin
Monroe	5	-	-	50.0%	0.0%	-	0.0%	-	-	60.0%	-	-	20.0%	-	40.0%	20.0%	0.0%
Nassau	11	0.0%	0.0%	20.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%	40.0%	-	0.0%	0.0%	0.0%
Okaloosa	16	40.0%	0.0%	0.0%	7.7%	0.0%	8.3%	60.0%	33.3%	23.1%	0.0%	0.0%	37.5%	-	10.0%	22.2%	0.0%
Okeechobee	2	-	-	0.0%	0.0%	-	-	-	-	0.0%	-	-	0.0%	-	-	-	0.0%
Orange	73	40.0%	0.0%	9.8%	10.1%	-	2.9%	-	50.0%	43.9%	-	0.0%	37.2%	0.0%	33.3%	46.5%	0.0%
Osceola	7	-	0.0%	0.0%	0.0%	-	0.0%	-	0.0%	71.4%	-	0.0%	14.3%	-	33.3%	33.4%	0.0%
Palm Beach	95	63.6%	9.5%	7.1%	4.9%	17.8%	0.0%	63.6%	0.0%	51.5%	50.0%	0.0%	34.1%	-	17.4%	50.0%	0.0%
Pasco	32	40.0%	0.0%	12.5%	7.7%	50.0%	11.1%	50.0%	50.0%	42.9%	0.0%	0.0%	37.9%	0.0%	35.7%	37.4%	0.0%
Pinellas	55	37.5%	0.0%	13.6%	6.7%	9.1%	0.0%	46.2%	42.9%	50.0%	0.0%	22.2%	39.2%	0.0%	16.1%	38.9%	0.0%
Polk	73	0.0%	0.0%	8.0%	18.4%	100.0%	0.0%	-	0.0%	40.6%	-	0.0%	43.1%	0.0%	16.7%	34.6%	0.0%
Putnam	3	-	-	-	0.0%	0.0%	-	-	-	-	0.0%	0.0%	33.3%	-	-	-	0.0%
Santa Rosa	6	6.2%	0.0%	7.7%	5.6%	10.0%	0.0%	9.1%	9.1%	8.3%	9.1%	0.0%	5.9%	-	5.6%	6.2%	0.0%
Sarasota	18	50.0%	-	17.6%	25.0%	0.0%	0.0%	-	-	25.0%	-	0.0%	50.0%	-	25.0%	40.0%	0.0%
Seminole	18	75.0%	14.3%	23.1%	25.0%	57.1%	7.1%	-	25.0%	61.1%	-	0.0%	57.9%	-	44.4%	60.0%	0.0%
St. Johns	20	-	-	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	-	-	33.3%	-	-	100.0%	0.0%
St. Lucie	20	-	-	6.7%	12.4%	75.0%	-	-	100.0%	93.3%	100.0%	0.0%	70.5%	0.0%	-	-	0.0%
Sumter	7	-	-	0.0%	0.0%	0.0%	0.0%	-	-	50.0%	-	-	50.0%	-	57.1%	50.0%	0.0%
Taylor	2	-	-	0.0%	0.0%	-	-	-	0.0%	0.0%	-	0.0%	0.0%	-	0.0%	0.0%	0.0%
Volusia	44	25.0%	0.0%	0.0%	9.8%	66.6%	0.0%	-	29.4%	43.3%	-	0.0%	38.7%	5.9%	29.4%	30.8%	0.0%
Wakulla	2	-	-	50.0%	50.0%	-	-	-	100.0%	50.0%	-	-	50.0%	-	100.0%	100.0%	0.0%
Walton	3	0.0%	-	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	33.3%	-	0.0%	50.0%	0.0%
Washington	2	0.0%	-	0.0%	0.0%	-	-	0.0%	0.0%	0.0%	-	-	0.0%	0.0%	0.0%	0.0%	0.0%
Total	1483	38.1%	6.4%	11.4%	10.3%	29.8%	3.6%	39.1%	24.9%	47.0%	21.2%	3.7%	40.8%	0.9%	25.6%	37.6%	0.1%

Other Activities

Methicillin-resistant *Staphylococcus aureus* (MRSA), a major cause of both healthcare-associated and community-associated infections, is not included on Florida's list of notifiable diseases in 2008. However, the Florida Department of Health began collecting antibiotic susceptibility data in 2005 for all *S. aureus* isolates processed by Quest Diagnostics, a commercial laboratory that primarily serves outpatient providers operating throughout Florida. Data for all *S. aureus* isolates from 2003 and 2004 were retrospectively collected and, as of 2008, six years of data are available. These data are not presented here, but please check the Bureau of Epidemiology website (http://www.doh.state.fl.us/Disease_ctrl/epi/htopics/anti_res/MRSA.html) periodically for updates.

In the November 2008 revision to *F.A.C.* Rule 64D-3, Florida made community-associated *S. aureus* mortality a reportable condition. Additionally, antibiotic susceptibilities for all *S. aureus* isolates from sterile sites became reportable via electronic laboratory reporting. This applies only to laboratories participating in electronic laboratory reporting with the Florida Department of Health, and individual case investigations are not required. The goal of this surveillance is to monitor trends of antimicrobial resistance.

The emergence of quinolone-resistant *Neisseria meningitidis* in the U.S. has raised important questions regarding current chemoprophylaxis guidelines and highlights the expanding threat of antimicrobial resistance in bacterial pathogens. The Centers for Disease Control and Prevention (CDC) responded to this threat by forming MeningNet, an enhanced meningococcal surveillance system that will be used to monitor antimicrobial susceptibility. As part of MeningNet, Florida began forwarding all *N. meningitidis* isolates to the CDC for antibiotic susceptibility testing in late 2008. A total of four isolates were tested, all of which were susceptible to penicillin, ceftriaxone, ciprofloxacin, rifampin, and azithromycin.

Nocardia species are weakly acid-fast, gram positive bacteria that can cause severe opportunistic infections including: respiratory infections; brain abscesses; cutaneous and lymphocutaneous disease; and actinomycotic mycetomas. Because *Nocardia* species are partially acid-fast, hospitals often seek confirmation from the Bureau of Laboratories to be sure they rule out a *Mycobacterium* species isolate. Sulfonamides have been the traditional treatment of choice for *Nocardia* species since the 1940's, but emerging sulfonamide resistance has been reported in Europe, Japan, and there have been a few cases and small case series reported in the U.S. In response to this emerging threat, the CDC started a three year surveillance project in 2007 to assess the burden of disease due to antimicrobial resistant *Nocardia*. In 2008, the Bureau of Laboratories began forwarding all presumptive *Nocardia* isolates to the CDC for antibiotic susceptibility testing as part of this surveillance project. Additionally, epidemiologic data will be collected to determine antimicrobial treatments and medical procedures for these cases.

Section 5: Enhanced Surveillance for Influenza and Community Associated MRSA Deaths

Enhanced Mortality Surveillance

Bacterial infections can occur as co-infections with influenza or occur after influenza infection. During the 2006-07 influenza season, the Centers for Disease Control and Prevention (CDC) noticed an increase in *Staphylococcus aureus* co-infections among children who had died from or were hospitalized with influenza infection. The CDC began working with states to monitor the situation and requested enhanced surveillance for influenza co-infections during the subsequent influenza season.

Licensed practitioners and medical examiners who diagnosed, treated, or suspected the occurrence of influenza-associated pediatric mortality are required to report the death per chapter 64D-3, *F.A.C*. To gather additional data, voluntary reporting of all Community Associated (CA)-*S. aureus* pneumonia death cases was requested. The Florida Department of Health contacted all Medical Examiners in the state for assistance in a new project to track fatal community associated *CA-S. aureus*-pneumonia in previously healthy individuals co-infected with influenza. Voluntary reporting of CA-*S. aureus* deaths by medical examiners began during the 2007-08 influenza season. During the first year of this program, there were nine deaths reported during the influenza season, of which six were due to pneumonia.

In 2008, chapter 64D-3, *F.A.C* was updated and included the additional requirement that all practitioners (including medical examiners) report all CA-S. *aureus* deaths. Community-associated *S. aureus* deaths are defined as deaths due to *Staphylococcus aureus* that are culture positive for the bacteria from a sterile or respiratory site and within the last year (prior to death) the patient had not: been hospitalized; undergone dialysis; had surgery; or had indwelling catheters or medical devices that pass through the skin into the body. There were five CA-*S. aureus* deaths reported to the state from the start of the new reporting requirement in November 2008 to the end of the year (December 2008).

Pediatric Influenza-Associated Mortality Surveillance

Background

The pediatric influenza-associated mortality surveillance started in 2004 in order to monitor the number of deaths in individuals less than 18 years of age who died as a result of complications from an influenza infection. A pediatric influenza-associated death is defined for surveillance purposes as a death in persons aged <18 years resulting from a clinically compatible influenza illness that was confirmed to be influenza by an appropriate laboratory test and in the absence of an alternative agreed upon cause of death. There should be no complete recovery between illness and death.

In 2008, three cases of pediatric influenza-associated deaths were reported to the Bureau of Epidemiology. Each case is summarized below.

Pediatric Influenza-Associated Mortality, Sarasota County, January 2008

On February 1, 2008 the Sarasota County Health Department (SCHD) received a report from a local hospital of an influenza-related death in a 40-day-old infant. The child was born on December 23, 2007, and discharged three days after birth, then re-admitted December 30, 2007 with a fever of 102.5°F, was generally fussy, and had constipation. The child was initially evaluated for meningitis and received a lumbar puncture in the emergency department. The cerebrospinal fluid (CSF) red cell count was six and white cell count was 836. The CSF serology was negative, glucose was 32, and protein was 103. RSV test was negative and the initial report stated that the child was influenza A and B negative (testing methodology was not specified). The child was admitted to pediatrics and treated with IV fluids, cefotaxime, and ampicillin but continued to decline.

On January 1, 2008, the mother noted that the child had decreased oral intake and was crying continuously. Acute respiratory failure prompted intubation and transfer to a local children's hospital. The child was admitted to the pediatric intensive care unit that same day. The child was noted to be in cardiogenic shock and an echocardiogram was performed which revealed poor ventricular function, moderate to severe mitral regurgitation, and mild to moderate pulmonary hypertension.

The next day an influenza screening test (EIA) was positive for influenza A and a subsequent culture test that was also positive for influenza A. A CT scan on January 6, 2008 revealed a large non-hemorrhagic left hemispheric stroke.

The child died on January 20, 2008 and the cause of death on the death certificate was listed as myocarditis and renal failure. The SCHD contacted the various healthcare providers in order to obtain any specimens or samples still available in order to perform additional testing at the Bureau of Laboratories. However, all samples had been previously discarded. The final discharge summary indicated that the child suffered from acute respiratory failure, severe cardiac compromise, presumed myocarditis secondary to Enterovirus, influenza A positive, large left hemispheric stroke, endotracheal tude positive for *Stenotrophomonas* and *Candida albicans*, renal insufficiency, and hyperbilirubinemia.

Pediatric Influenza-Associated Mortality, Indian River County, February 2008

The Indian River County Health Department was notified by the Alachua County Health Department of an influenza-associated pediatric death in an Indian River resident. A 17-year-old female with a history of cystic fibrosis was hospitalized in December 2008 for cystic fibrosis exacerbation and again on February 19, 2008 at a hospital in Alachua County. Her symptoms in February were much worse than they had been in December and included: increased coughing with increased thickening of her mucous; fever (102°F); and nausea that resulted in post-tussis emesis and headaches. Hypoxia was significant (low 70's) and oxygen support was provided. The patient was positive for influenza A on an antigen screening test. No further testing was done. Although her chart indicated she was given an influenza shot earlier in the year, this could not be confirmed. The patient's physical status continued to decline. A joint decision between the parents and patient was made to not pursue any continuous means of treatment. She died on March 15, 2008.

Investigation of a Pediatric Influenza A Co-infection Death, Hillsborough County, March 2008

On April 4, 2008, a call was received by the Hillsborough County Health Department (HCHD) from the medical examiner (ME) informing HCHD of a two-year-old child who had succumbed to influenza A on March 26, 2008. The medical records showed that on March 12, 2008, two weeks prior to the patient's death, the girl was seen at Hospital X, and diagnosed with an upper respiratory infection. A week later, on March 19th, 2008, she was taken to Hospital Y with symptoms of an upper respiratory infection, prescribed antibiotics, and sent home. On March 26, 2008, she was found in bed not breathing, laying on her stomach. The deceased was transported to Hospital Z and pronounced dead.

The case was referred to the ME, where several additional tests were conducted. These tests revealed that the child's primary cause of death was due to influenza A, with secondary co-infections of parainfluenza-3 and adenovirus. The ME also discovered that the deceased had sickle cell trait, which was also deemed a contributing factor to her death.

References

The Centers for Disease Control and Prevention, "Influenza-Associated Pediatric Mortality and *Staphylococcus aureus* co-infection" Official CDC Health Advisory, January 30, 2008. Available at http://www.cdc.gov/flu/professionals/flustaph.htm.

Florida Administrative Code, 64D-3, http://www.doh.state.fl.us/disease_ctrl/epi/topics/64D-3_11-08.pdf.

Section 6: Summary of Notable Outbreaks and Case Investigations, 2008

Listed alphabetically by disease

In Florida, any disease outbreak in a community, hospital, or institution, as well as any grouping or clustering of patients having similar disease, symptoms, syndromes, or etiological agents that may indicate the presence of an outbreak is reportable, as per *Florida Administrative Code,* 64D-3. Selected outbreaks or case investigations of public health interest that occurred in 2008 are briefly summarized below. Following many investigation summaries are citations or links where additional information can be found about the event. Investigation summaries are organized by disease name; within each disease category investigations are listed chronologically (January through December, 2008).

Additional disease summaries and information describing epidemiologic events in Florida can be found in *Epi Update. Epi Update,* an online publication of the Bureau of Epidemiology, Florida Department of Health, can be accessed through the following site:
http://www.doh.state.fl.us/disease_ctrl/epi/Epi_Updates/index.html

Food and waterborne disease outbreaks in Florida are summarized in annual reports produced by the Bureau of Environmental Public Health Medicine accessible via the following site:
http://www.doh.state.fl.us/environment/community/foodsurveillance/annualreports.htm

Annual food and waterborne reports include overall statewide data as well as summaries of selected outbreaks. In addition, a bibliography of journal and *EpiUpdate* articles on food and waterborne disease can be found at the following site: http://www.doh.state.fl.us/environment/medicine/foodsurveillance/annualreports.htm

Amoebic Encephalitis

Amoebic Encephalitis, Sarasota County, June 2008

On June 24th, the Sarasota County Health Department (SCHD) received a report from a local hospital of a 79-year-old man who was diagnosed with amoebic encephalitis by a pathologist that had examined a brain biopsy of a mass in his right frontal lobe. The pathologist described the brain biopsy as “Edematous brain with necrosis and acute and chronic inflammation with organisms suspicious for amoebic encephalitis.” A second opinion from a Johns Hopkins University pathologist concurred with the diagnosis. The patient had onset of severe lethargy and overall weakness approximately June 12th and he could not move without assistance. On June 14th, the man’s wife noticed increased confusion and had him transported by Emergency Medical Services to a local emergency department (ED). The man was alert in the ED, but somewhat confused, had a temperature of 103.5° F, and a stage two decubitus ulcer at the base of his sacrum. A CT scan showed a mass in the frontal lobe. The patient’s pre-existing conditions included diabetes, autoimmune hepatitis for which the patient was on long term prednisone therapy, a history of skin cancer, and a bone marrow transplant four years ago. He underwent a craniotomy on June 18th to biopsy the brain mass. The patient was comatose post-procedure and expired when he was removed from life support on June 24th. A sample of the brain biopsy was forwarded to the Centers for Disease Control and Prevention, Division of Parasitic Diseases for further identification and confirmation. The specimen tested was positive for *Acanthamoeba* species via indirect immunofluorescence.

The man’s wife reported no exposure to natural fresh water sources or pools in more than two years. The patient did have limited exposure to a temporary indoor pool used for church services within the one to two weeks prior to onset. Sarasota County Environmental Health evaluated the pool for basic sanitation and recommended routine chlorination. The man's wife reports no recent travel, no gardening or exposure to soil, no history of recurrent skin lesions, and no other recent infections (other than the sacral ulcer).

Botulism

Infant Botulism Diagnosed in California, Duval County, August 2008
On August 8, 2008, the Duval County Health Department's (DCHD) Epidemiology Program was notified by Bureau of Epidemiology staff that a six-week-old infant, a Duval County resident, was diagnosed with botulism in California. The infant, then four weeks old, became ill on a flight to California. The infant slept soundly through first part of flight but on the second part of the flight was noted to suck poorly, drool excessively, and to have a weak cry. An hour before the end of the flight, the infant became limp. After reaching the airport, the infant was driven by parents to a community hospital emergency department where the infant's condition deteriorated to full respiratory arrest. The infant was intubated and transferred to a larger hospital. California's Infant Botulism Treatment and Prevention Program consulted with physicians and anti-toxin (BabyBIG) was given July 28th. A stool specimen was collected and was positive for Botulinum Toxin A. Investigation revealed that the infant had experienced constipation a week prior to the flight, was breast-fed entirely except on two occasions, and was never given honey. The family lives in an area of Duval County where new homes are currently being constructed. The infant was transferred to a hospital in Orlando on September 23rd and remained on a ventilator. She was later discharged home from the hospital. Last update revealed that the infant still had a tracheostomy and a gastrostomy button, but was eating some solid foods and breastfeeding. The infant is able to stand with assistance of parents but has not crawled and has one eye that slightly wanders.

Brucellosis

Hunter-Acquired *Brucella suis* Infection, Lake County, Florida and Pennsylvania, July 2008
On July 24, 2009, the Lake County Health Department (CHD) was advised of a confirmed brucellosis patient (Patient A) in Pennsylvania that had a brother (Patient B) in Lake County, Florida who may have been ill and had the same exposures.

The epidemiologic investigation revealed that Patient A had hunted feral swine with Patient B in December 2007 in Sumter County, FL. Both Patient A and Patient B participated in field dressing and butchering three hogs. The spouses and the children of Patient B assisted in carrying meat and cleaning up. No personal protective equipment was worn during the field dressing and butchering. Soap and water were used to wash hands and instruments/equipment. No other risk factors for brucellosis were identified. Some of the pork was brought back to Pennsylvania, stored in a freezer, and consumed by Patient A's family members over a seven month period, however adequate cooking was reported. Meat was prepared mainly by the wife of Patient A. In July 2008, Patient A presented with morning fevers (100°-102° F), myalgia, chills, shortness of breath, and night sweats. A 30 pound weight loss over a one month period was also noted. Three specimens were collected for testing and sent to the Centers for Disease Control and Prevention (CDC). *Brucella suis* was cultured from a blood sample collected from Patient A; two isolates were also recovered from frozen sausage and tenderloin of the wild hog. Genotyping of the three *B. suis* cultures performed by CDC indicated strong genetic correlation between all three isolates.

When contacted by Lake CHD, Patient B reported having similar signs and symptoms for two months starting in April, 2008 which he attributed to a scorpion bite. No medical attention was sought at that time. Other than feral swine hunting, no other brucellosis risk factors were identified for Patient B. Patient B reported that all meat from the *Brucella* positive pig was either smoked, roasted, or barbequed prior to consumption and all of the meat was consumed at a family cookout except for the meat taken by Patient A back to Pennsylvania.

A serum sample from Patient B was collected by Lake CHD in September 2008 and tested at the CDC for anti-*Brucella* antibodies, using the *Brucella* microagglutination test, with a resulting IgG of 640, meeting the brucellosis probable case classification. Treatment was recommended as relapses and chronic illness are often associated with untreated *Brucella* infections; Patient B's current status is unknown as he was lost to follow up. Serology was not performed on the families of Patient A or B due to the lack of signs or symptoms.

Case of *Brucella melitensis*, Palm Beach County, November 2008

In November of 2008, Palm Beach County Health Department (PBCHD) was notified by Focus Diagnostics in California that a patient's culture was presumptive positive for *Brucella* and that the sample was being forwarded to the state reference laboratory in California for confirmatory testing and speciation. In late October, the patient had been admitted to a Palm Beach County hospital with the chief complaint of abdominal pain and an admitting diagnosis of cholecystitis. An infectious disease consult was requested on November 5th because the patient was septic with gram-positive coccobacilli; blood samples were submitted for culture. The patient improved with supportive care and antibiotic treatment and was discharged on November 10th. The patient was released from the hospital before the PCR and culture results were available. The primary physician and the patient were unaware of the positive test results and were informed of the results on November 19th by PBCHD when the presumptive positive PCR results were received. The infectious disease doctor initiated treatment for the patient the day he was notified of the results on November 24th. Final laboratory results received from the state laboratory in California on November 25th were positive for *Brucella melintensis* by PCR.

A review of the patient's medical history revealed that the patient had reported knee and waist pain since late January 2008 and stopped working as a result. In early February 2008, he started having intermittent night sweats/chills. The patient was seen by several doctors following symptom onset but brucellosis was not suspected. In May 2008, the patient was seen by an infectious disease doctor post-knee surgery because of a possible joint infection. The culture specimens taken at that time were negative for *Brucella*. A definitive exposure was never identified but is suspected to have been prior to the initial symptoms in January 2008. The only exposure of interest was consuming "leche fresca" while visiting Mexico, which could have been un-pasteurized, but this exposure occurred after the onset of symptoms.

Campylobacteriosis

Pet-Associated Campylobacteriosis, Hillsborough County, March 2008

The Hillsborough County Health Department (HCHD) investigated a case of campylobacteriosis in a seven-year-old girl in April of 2008. Symptoms began on March 31, 2008 and included bloody diarrhea, abdominal pain, cramps, vomiting and a fever. *Campylobacter* was cultured from the girl's stool specimen.

The girl's family had recently purchased a golden retriever puppy (2.5 days before the illness onset in the patient). This puppy was experiencing diarrhea immediately upon arrival in the new household. The dog was brought to a veterinarian and treated for an unspecified bacterial infection. The puppy was later found to have "round worms and spirochetes." The case investigation revealed that the girl had not eaten any undercooked meat and did not have any other obvious risk factors.

While not a spirochete, *Campylobacter* is a comma shaped bacteria and could be what was observed on the puppy's laboratory exam. Transmission of *Campylobacter* from pets to humans (through fecal-oral contact) is estimated to cause more than 200,000 cases of gastroenteritis per year (see reference below).

On Wednesday, April 30, 2008, Hillsborough County Animal Services and HCHD Environmental Health went to the house where the puppy was purchased and where dogs were being bred. Investigators found a ruptured septic tank and squalid conditions. The dogs had been living in a fly-infested backyard filled with human waste. The dogs were taken to animal services for bathing and treatment for fleas, *coccidian*, and worms. Fifteen dogs from this breeder had been recently sold, and Animal Services made telephone calls informing pet owners of the situation.

Additional resources

Stehr S. "The impact of zoonotic diseases transmitted by pets on human health and the economy", *Vet Clin North Am Small Anim Pract* 1987: Vol. 17, pp. 1-15.

Ciguatera

Two Ciguatera Outbreaks, Miami-Dade County, May 2008

In the month of May 2008, two outbreaks of ciguatera poisoning were investigated by the Miami-Dade County Health Department.

The first reported outbreak involved three persons, a 56-year-old woman, her brother, and father who ate a two-foot long grouper at home on May 12, 2008. The woman presented with diarrhea five hours after lunch as well as reversal of cold/hot sensations, joint and muscle pain, body aches, and itching. She was treated with mannitol, but felt strong pain in her arm and discontinued the medication. She continued to experience neurological symptoms. The father and brother ate less fish and presented with mild neurological symptoms and they both recovered. The brother received the grouper as a gift and did not know where it was caught. No leftover or frozen fish was kept, hence no sample could be sent for confirmation to the U.S. Food and Drug Administration (FDA) Gulf Coast Seafood Laboratory in Dauphin Island, AL.

The second outbreak involved a husband and wife who ate eel in a sushi roll at a restaurant in Palm Beach County on May 17, 2008 at 5:30 p.m. The wife had an onset the following day at 10 a.m. with gastrointestinal symptoms, abdominal pain, and diarrhea. A day later, neurological symptoms began including: strong reversal of cold/hot sensations; joint and muscle pain; body aches; itching; weakness in legs; rash; tingling; numbness; pin-prickling; and fatigue. She received mannitol and felt better, though neurological symptoms persisted. Her husband presented with mild neurological symptoms including joint and muscle pain and itching, but later recovered. This was the second time in their lifetime they both had ciguatera; the first event occurred in 1990. The wife contacted 10 of the 14 other diners from the group, but none complained of any similar symptoms.

Three Ciguatera Outbreaks Reported, Palm Beach County, June 2008

Three separate outbreaks of ciguatera poisoning were reported to the Palm Beach County Health Department (PBCHD) Epidemiology Program related to the ingestion of grouper during June 2008. The first report included two men fishing in the Bahamas who caught and ate an 8 lb. grouper on June 22, 2008. Their symptoms began six hours later and included: vomiting; diarrhea; tingling of the lips and tongue; and reversal of hot and cold sensations. Both were evaluated by private medical doctors.

The second outbreak was reported to PBCHD on June 30, 2008 by the Florida Poison Information

Network. A family of four purchased and consumed two grouper fillets from a local seafood store on June 26, 2008. Approximately four hours later, they started experiencing symptoms including: vomiting; diarrhea; tingling; reversal of hot and cold sensations; and some difficulty breathing. The family was evaluated at a local emergency department (ED) and offered mannitol therapy. The seafood store was visited by the PBCHD Environmental Health Program. The store had purchased one 20 lb. grouper from a local distributor.

The third outbreak involved a family of four who became ill after consuming black grouper purchased from a market on June 26, 2008. The persons consumed the grouper and developed symptoms 2.5 to 4.5 hours later including: abdominal pain; diarrhea; body aches; dizziness; joint and muscle pain; itching; breathing difficulties; tingling and numbness in lips, nose, and tongue; pains in teeth and gums; reversal of hot and cold sensations; vomiting; and weakness in legs. Patients visited a local ED and were diagnosed with ciguatera intoxication. Trace-back of the fish revealed that grouper had been purchased from the same distributor in Miami as the outbreak listed previously on June 21st and 24th. That fish was reportedly imported from the Bahamas. Black grouper was also purchased on June 24th from a distributor in Sunrise, FL. Grouper from the second and third outbreaks that occurred on June 26th were tested at the FDA Gulf Coast Seafood Laboratory and found to be positive for ciguatera with levels high enough to cause illness.

Outbreak of Ciguatera Associated with Consumption of Grouper, Nassau County, July 2008

On July 3, 2008 the Nassau County Health Department (NCHD) was notified of a physician-diagnosed ciguatera case in a tourist who had consumed grouper at a resort on Amelia Island. From July 3-11, 12 additional cases were reported in persons who consumed grouper at two resort restaurants, for a total of 13 cases. All persons consumed grouper from June 26-29 and developed gastrointestinal illness (GI) from June 27-30. Grouper was served in an 8 oz. entree portion in one restaurant and in a 4 oz. blackened grouper sandwich in the second restaurant. A dose-response relationship was found as cases that ate the 8 oz. portion were more likely to have experienced a longer duration and severity of symptoms. The trace-back investigation of the grouper consumed at both restaurant locations indicated that the fish were bought from the same distributor in Miami, FL as the two ciguatera outbreaks reported above from Palm Beach County. That fish was also reported to be of Bahamian origin. The Palm Beach cluster occurred when a family purchased and consumed grouper on June 26, 2008 from a local grocer and developed GI symptoms and temperature reversal.

Of interest, a breast milk toxin transfer may have occurred when the mother of 2.5-year-old child reported that her son exhibited symptoms of ciguatera intoxication after breast-feeding. The child developed a 72-hour fever and remarked that drinking a cold beverage “burned his mouth” (an indicator of temperature reversal). Immediately, the mother ceased breast-feeding and the child recovered within 24 hours.

Ciguatera Investigation, Pinellas County, September 2008

The Pinellas County Health Department and the Bureau of Environmental Public Health Medicine investigated a case of ciguatera that was reported by the Florida Poison Information center on September 8, 2008. The patient was a 56-year-old woman who had been visiting her daughter in St. Thomas, Virgin Islands at the end of August. On August 27, 2008, her party went on a fishing trip and caught a Blue-eyed Trevally, an amberjack species. The fish was prepared with lime juice and coconut milk and served as sashimi. Illness occurred within five hours, beginning with gastrointestinal symptoms followed by paresthesia, muscle pains, and hot and cold reversal symptoms for approximately a week. The patient was seen at a clinic in St. Thomas and treated for diarrhea and vomiting symptoms. According to the patient, the fish was recreationally caught in the waters north of St. Thomas which was reputed to be a lower risk area for ciguatoxin.

Cryptosporidiosis

***Cryptosporidium parvum* Outbreak Among a High School Swim Team, Sarasota County, August-September 2008**

On September 8, 2008, a single confirmed case of cryptosporidiosis in a swim team member/public pool employee was reported to the Sarasota County Health Department (SCHD). The case's disease onset was August 15th, with symptoms of bloody diarrhea, abdominal pain, cramps, chills, and nausea. The suspected exposures were the ongoing use of public pool A and swimming in Lake Mead, NV on August 8, 2008. The index case's symptoms resolved September 5th. During the symptomatic and infectious period, the case swam almost daily at public pool A with a high school swim team and periodically worked at the pool as a life guard.

Interviews of all team members, indicated 13 children reported symptoms of gastrointestinal (GI) illness since August 1st. Symptoms included diarrhea (100%), abdominal pain (69%), nausea (31%), and vomiting (31%). No fevers (>100.4 F) were measured. Average duration of symptoms was 10 days, a median of 8.5 days, with a range of 3-20 days. Six stool ova & parasite specimens were collected from cases, two of which tested positive for *Cryptosporidium parvum*.

Further case finding efforts at public pool A attempted to identify pool staff and members with GI illness. Signs were posted at the entrance to the building asking persons with symptoms of GI illness to report to the pool staff and call the SCHD. Pool staff were surveyed by pool management. No additional reports of illness were received from members or staff of public pool A. No symptomatic household contacts or other close contacts of cases were reported.

During this outbreak disease control measures included: the exclusion of ill team members from swimming for two weeks after resolution of symptoms; voluntary cancellation of meet participation and practices; the correction of environmental health violations and super-chlorination of the pool; and education regarding good hygiene practices.

Cyclosporiasis

***Cyclospora* Case Control Study Due to Increase in Reported Cases, May-June 2008**

In the summer of 2008, the Food and Waterborne Disease Program observed a moderate increase (two standard deviations of the expected number of cases) in cyclosporiasis cases. In response to this observed increase, the Food and Waterborne Disease Program initiated a case-control study to try to determine the source of the increase. A statewide total of 27 cyclosporiasis cases had symptom onset during May and June of 2008. Initial case investigations by the local county health departments noted cases were sporadic and there were no identified clusters or common food exposures. After excluding cases with history of out-of-state travel during the incubation period, 15 of the 27 cases were able to be interviewed for the case-control study. Twenty-six (26) controls matched by age group and county (approximately two controls per case) were also interviewed. Based on the epidemiological analysis, consuming avocados appeared significantly associated with disease (OR= 3.95, 95% CI: 1.005-15.577). However, only seven out of the 15 interviewed cases reported consuming avocados. Due to the small sample size, low statistical power, potential recall bias, and incomplete or missing data in some interviews, the results of the study were determined to be inconclusive. Without further intervention, case levels for cyclosporiasis eventually dissipated and returned to background levels throughout the state.

Eastern Equine Encephalitis

Eastern Equine Encephalitis in a Three-Month-Old, Leon County, August 2008
On August 20, 2008 a hospital infection control nurse called the Leon County Health Department (LCHD) to report a suspected case of bacterial meningitis in a three-month-old infant. The child presented to the emergency department on August 19th with a fever (as high as 105° F), lethargy, irritability, and tonic/clonic seizure activity over a period of 24-48 hours. The infant had been treated with Rocephin and Augmentin for a fever and suspected pneumonia one week prior to admission. The Augmentin was finished one day prior to admission. The medical history was otherwise unremarkable with a normal term delivery.

Cerebrospinal fluid (CSF) was abnormal and the gram stain was initially reported as positive for a “few gram positive coccobacilli in pairs, chains, clusters” but after review, the report was changed to “no organism seen.” The blood and CSF cultures were negative. The chest X-ray was clear. The child was admitted to the intensive care unit (ICU) for suspected bacterial meningitis and was treated with Rocephin, Vancomycin, steroids, and Dilantin.

The pediatric infectious disease physician suspected meningococcal meningitis. Sixteen contacts in the child’s household and the babysitter’s household were provided antibiotic prophylaxis by the LCHD and the sibling’s pediatrician on August 20th. On August 29th the Bureau of Laboratories-Jacksonville reported a positive serum IgM with an Eastern Equine Encephalitis virus titer of 1:40. No antibody was detected to the St. Louis Encephalitis virus.

The mother stated that the child had been exposed to mosquitoes in the two weeks prior to illness. The family lived near a swampy area and often left the front door open in the afternoon. The family would also sit outside in the early evening. The infant was protected from mosquitoes with a “Citronella brand coil bracelet/mosquito repellent” worn on the ankle.

The child required an extended stay in the ICU with ventilator support. It is unknown if there were any long term sequelae.

Ehrlichiosis/Anaplasmosis

Ehrlichiosis in Ocala National Forest, July 2008
On July 10, 2008, the Palm Beach County Health Department received an IgG IFA positive lab result for *Ehrlichia chaffeensis* (Human Monocytic Ehrlichiosis) through Merlin from an out-of-state hospital where a 70-year-old female patient had been treated. The patient was contacted on Friday, July 11th and she reported that she lives in Vermont part-time and was there when she decided to go to the hospital. Approximately one week prior to becoming ill, the patient and her husband went camping in the Ocala National Forest, in Ocala, Florida. She recalled lots of deer flies and after a day or so her hip area started to itch. A few days later she became ill with fever, chills, and fatigue. By the time she returned to Vermont, she was very disoriented and had to be taken to the hospital on June 14th. Upon examination, a tick was found still embedded in the patient’s hip. The tick was saved to be sent for testing/identification to a university in Vermont for which no results are available. The patient was treated with Doxycycline and was much improved.

Giardiasis

Gastrointestinal Illness Outbreak in Travelers Returning from Guatemala
The Nassau County Health Department's (NCHD) Epidemiology Program investigated a cluster of gastrointestinal illnesses (GI) in six U.S. missionaries who traveled to the Zacapa region of Guatemala from May 17-24, 2008. The volunteers stayed in a mission house in Guatemala, consumed multiple group meals, and participated in well construction projects in three rural villages near Zacapa. The group was exposed to untreated water sources. On May 23rd, four of the volunteers experienced GI symptoms and received medical care at a local hospital in Antigua, Guatemala. The remaining two volunteers became ill on May 24th and May 25th. One volunteer tested positive for *Giardia*.

NCHD communicated the investigation findings to the mission group coordinator to share with partners at the mission center in Guatemala. The team leader conducted surveillance for additional cases in Guatemala to determine if there was a continuous risk of exposure, as the mission center hosts new volunteers on a regular basis.

Hemolytic Uremic Syndrome (HUS)

HUS in a Child with Multiple Possible Exposures, Palm Beach County, October 2008
On October 23rd, the Palm Beach County Health Department was notified of a seven-year-old boy with symptoms of abdominal pain, bloody diarrhea, fatigue, and fever who was admitted to the hospital after eight to ten days of illness; illness onset was October 9th. During his illness, he had been seen by a pediatrician on at least one occasion and was also seen at another hospital prior to hospital admission. For various reasons, proper tests were not conducted or were conducted once the child was placed on antibiotics, so a positive culture for *Escherichia coli* and/or Shiga toxin was unattainable. However, the child was diagnosed as having hemolytic uremic syndrome (HUS) due to an elevated creatinine level and anemia. After his onset of symptoms, his six-year-old sister and 14-month-old brother had the same, yet milder symptoms with onsets of October 11th and 12th. The siblings were also admitted to the hospital and were not properly tested for *E. coli* and/or Shiga toxin. The siblings' test results for creatinine and anemia did not meet the criteria to diagnose HUS. All three children were exposed to a petting zoo (duck, rabbit, and goat) on September 27th; two weeks prior to the index child becoming ill. There was also a report of exposure to slightly undercooked burgers at home the night before the index child became ill. The incubation periods relative to each exposure seemed a little too long or too short to pinpoint either as the definitive exposure.

Healthcare-Associated Infections

Invasive Bacterial Infections at a Dialysis Clinic, Osceola County, July 2008
On Monday July 21, 2008, the Osceola County Epidemiologist was notified of three dialysis patients hospitalized over the previous weekend with suspected invasive bloodstream infections. Two of these patients received dialysis at the same clinic. Of these two patients, one was culture-positive for Methicillin-sensitive *Staphylococcus aureus* (MSSA) and the other for Methicillin-resistant *S. aureus* (MRSA). The third patient attended a different clinic, and all culture results were negative. That afternoon the Osceola County Health Department (OCHD) conducted an interview at the dialysis clinic shared by the two patients.

The clinic conducts hemodialysis on approximately 40-50 patients at day, and has a current hemodialysis patient census of 100. During the initial phone call, the clinic stated that they were unaware of any of their patients being hospitalized. The clinic also stated that there was a failure in their reverse osmosis water treatment system on July 11, 2008. OCHD Environmental Health staff collected water samples from the clinic, which came back negative for coliforms. Based on information collected, the water treatment system failure was ruled out as a causal agent for these infections.

OCHD worked with the clinic and local area hospital to identify additional blood stream infection cases that had dialysis at the same clinic. Three additional cases were identified, making a total of five dialysis patients with bloodstream infections. The first case was admitted to the hospital on July 8, 2008 followed by two cases on July 20th, one case on July 26th and one case on August 1st. Cultures were positive for MSSA in two patients, MRSA in two patients and *Proteus mirabilis* in one patient. One of the patients died as a result of their bloodstream infection.

A site visit to the clinic was conducted by OCHD on August 6, 2008. During the visit, poor infection control practices were observed, which included improper glove usage and inadequate hand washing techniques. Based on these observations, OCHD contacted the Association for Health Care Administration (AHCA) to report the observance of poor infection control practices at this clinic. Following this complaint, AHCA conducted a site visit to the clinic but observed no infection control problems or violations.

Active surveillance was continued and no additional cases were identified. Findings from this investigation and site visit were communicated to the clinic, along with information on proper infection control practices, hand washing technique, and glove utilization.

Hepatitis A

Three Possible Hepatitis A Cases Associated with an Ill Food Worker, Lee County, February 2008
On February 8, 2008, the Erie County Department of Health reported to the New York State Department of Health a confirmed case of hepatitis A virus (HAV) infection in a produce-handler. The handler worked at a local grocery store in a suburb of Buffalo, NY. The produce-handler may have been contagious and shedding virus from January 7 through February 4, 2008. Some of the produce stocked by the handler may have remained on display through February 8th. Because the handler most likely did not wear gloves while handling produce, persons who ate uncooked fresh produce (raw fruits and vegetables) purchased loose or in a perforated container at the store from January 7th to February 8th may have been at risk for exposure to HAV. According to the grocery store chain, approximately 84,000 produce transactions were completed at the implicated location during that time period.

State and local health officials were notified of this situation through a posting to the Centers for Disease Control and Prevention's (CDC) information exchange called Epi-X. They were asked to identify cases of HAV infection potentially associated with this exposure and were asked to provide post-exposure prophylaxis (PEP) where indicated. The Lee County Health Department identified three individuals that met the criteria to receive hepatitis A PEP. All three were winter visitors to the state and had eaten fresh produce from the implicated store during the time period of interest.

Hepatitis A, Collier County, August 2008
In August 2008, the Collier County Health Department (CCHD) investigated an isolated cluster of eight cases of hepatitis A within one family residing in a migrant farm community. The family (two adults and six children) traveled to Mexico on July 1, 2008. Onset of vomiting and diarrhea was July 3, 2008 while all family members were still in Mexico. Symptoms resolved before they returned to Florida for all except the 10-year-old girl, who developed jaundice. She was evaluated by a physician in Mexico. Anti-protozoa and anti-amoebic medications were prescribed, but the child's symptoms did not improve. The family returned to Collier County on August 16th, and on August 29th the 10-year-old girl was hospitalized

related to vomiting and diarrhea for the past 1½ months, jaundice, weight loss, abdominal pain, and headache. The child's laboratory reports were positive for acute hepatitis A and the child's liver function tests were elevated.

A home visit was completed by CCHD, and proper household and personal hygiene were discussed. Serology was completed for all family members, and the results were positive for infections with the hepatitis A virus. The parents were not employed in sensitive positions that would require exclusion during or shortly after illness with hepatitis A, and five of the six children were able to attend the first day of the new school year. None of the family members had previously received the hepatitis A vaccine. Due to the incubation period for hepatitis A and the onset of symptoms two days after arrival in Mexico, the infection was most likely acquired in Florida. Prophylaxis was not provided to any contacts, and no other cases of hepatitis A have been noted in the community.

Klebsiella pneumoniae

Outbreak of Carbapenem-Resistant *Klebsiella pneumoniae* Infections in a Long-Term Acute Care Hospital, Broward County, March 2008

In March 2008, the Broward County Health Department was notified by a regional medical center about the death of a 59-year-old woman with multi-drug resistant *Klebsiella pneumoniae* isolated from the urine. This patient had been transferred from a long-term acute care hospital (LTACH) to the medical center one day prior to death, so it was hypothesized the infection was contracted at the LTACH. A review of all LTACH *K. pneumoniae* culture reports revealed over 20 reports from 13 patients over a four-month period with similar antibiogram results including resistance to carbapenem antibiotics. This class of antibiotic is usually the best for treating highly resistant strains of *K. pneumoniae,* hence the organism is referred to as carbapenem-resistant *Klebsiella pneumoniae* (CRKP).

Investigation included performing a case-control study to identify risks for CRKP acquisition. In addition, rectal swab specimens were obtained on all LTACH patients to identify any patients that were infected or colonized with CRKP but who had not previously been cultured (active surveillance). Case-patients were defined as those infected or colonized with CRKP diagnosed ≥72 hours after admission to the LTACH between January 15 and April 30, 2008. Control-patients were those that tested negative for CRKP. Isolates were tested with the Modified Hodge test to identify carbapenemase production and typed with pulsed-field gel electrophoresis (PFGE). Lastly, the investigation team assessed mortality within the LTACH cohort.

CRKP was isolated from 13 case-patients (eight infected; five colonized); active surveillance identified CRKP among six patients, all of whom were known case-patients. All isolates had indistinguishable PFGE patterns and all were carbapenemase-producers (Modified Hodge positive). Case-patients and control-patients were similar in age, sex, race, and Charlson co-morbidity score. Case-patients had longer lengths of stay (LOS) before first positive CRKP culture (versus control-patient LOS before negative screening culture) and had more implanted medical devices (ANOVA and Chi-Square, p-value<0.05). Case-patients were more likely to be exposed to the ICU and to have received penicillin or aminoglycoside antibiotics in the prior 30 days. Nine of 13 case-patients and two of 28 control-patients died (OR 29.3, 95% CI 3.6, 314.6). Deaths per 1,000 patient-days of observation were higher for CRKP patients (incidence density ratio: 4.9; 95% CI, 1.1–22.9).

The intervention consisted of enhanced contact precautions and cohorting of case-patients. After implementation, only one additional case was found with a matching PFGE pattern.

This is the first CRKP outbreak reported in a Florida LTACH and the first in which all in-patients were screened. Surveillance cultures demonstrated no on-going transmission to other patients, which allowed the facility to focus control efforts on case-patients. High mortality and limited treatment options underscore the need for prevention efforts of healthcare-associated infections with this highly pathogenic *Klebsiella* strain.

Legionellosis

Legionellosis in Wedding Attendees, Orange and Pinellas counties, March 2008
On March 11, 2008, the Pinellas County Health Department (PCHD) Epidemiology Program was notified by a local hospital of a laboratory-confirmed case of Legionnaires' disease with onset on March 7th. On March 12th, an infection control practitioner at the same hospital reported an additional laboratory-confirmed case of Legionnaires' disease with onset of March 9th. Both people were Canadian residents who had recently attended a wedding in Orlando, Florida and stayed at Hotel A. Further investigation revealed confirmed Legionnaires' disease cases in another wedding guest from Canada and a United Kingdom resident who had both stayed at Hotel A during the same time period. A letter was distributed to all guests staying in the hotel between February 27th and March 15th, which helped identify one probable Legionnaires' disease case. Environmental, epidemiological, and laboratory investigations were undertaken in an attempt to determine the source of infection.

Epidemiologic data indicate that the source of the outbreak was the outdoor hot tub at Hotel A. The only common exposure among the five affected people was staying at this hotel between February 23rd and March 8th, 2008. No common exposures outside Hotel A were identified. There was a statistically significant association between spending time in the hotel's hot tub and acquiring Legionnaires' disease (odds ratio = 22.11, 95% confidence interval = 1.22-1569.46, p-value = 0.0162). Environmental inspection observations at the hotel support the biological plausibility of a causal association of the hot tub with illness. The chlorine levels observed in the hot tub at the time of inspection were not sufficient for disinfection, which could allow *Legionella* bacteria to thrive in the warm water. The existing design of the filters and water flow of the hot tub created a condition where a large volume of water was passing through an insufficiently sized filter. The hot tub therapeutic jets produce aerosolized water droplets, less then 5 µm, which can be inhaled. Environmental sampling did not yield any positive laboratory results, though this could be due to laboratory or sampling error. Negative results could also mean that the organism was not present in detectable quantities for the testing methods used, or the organism was not present at time of sampling. This outbreak highlights the risk for transmission of *Legionella* bacteria from an inadequately maintained hot tub. It is critical that all pools, hot tubs, spas, and whirlpools be properly maintained on a regular basis in a prescribed manner to prevent transmission of disease.

For more information about this investigation please visit

Eisenstein L, Bodager D, "Outbreak of Legionellosis Associated with Exposure to a Hotel Outdoor Hot Tub, Orange County, Florida, March 2008", *Florida Journal of Environmental Health*, Fall, 2008, Issue 200, p.14-19.

Legionellosis Cluster Associated with Fitness Club, Orange County, June-September 2008
On September 30, 2008, the Orange County Health Department (OCHD) Epidemiology Program was notified by a local hospital of a laboratory-confirmed case of Legionnaires' disease with illness onset of September 25th. The initial interview of the 33-year-old woman disclosed that during her incubation period she lived in several rooms at a local hotel that she described as humid, moldy, and containing wet carpet. The patient denied hot tub or pool use during the two weeks prior to illness onset. On October 7th, the OCHD Epidemiology Program was notified of another laboratory confirmed case of Legionnaires' disease with illness onset of September 29th. The 70-year-old woman reported frequenting

a local health fitness club (Fitness Club A) during the exposure period with no other reported relevant exposures. Exposures at Fitness Club A included a hot tub and showers. The initial environmental inspection at Fitness Club A on October 14th revealed several issues with their pool and hot tub cleaning and maintenance including that the required maintenance logs were not consistently being used. One filter instead of the required two was being used on the hot tub at the time of this inspection. The OCHD Swimming Pool Inspector closed both the pool and hot tub based on these findings per standard Department of Health protocols.

On October 22nd, the OCHD Epidemiology Program learned that the initially reported 33-year-old woman had also visited the same fitness club during the two weeks prior to her illness onset. Her exposures included both the hot tub and shower facilities. As a result of this new information, indicating a potential cluster of two or more similar illnesses linked to a common source, the OCHD Epidemiology Program initiated an investigation. Based on the environmental assessment and epidemiological data, environmental samples were collected from the hot tub and women's showers at Fitness Club A on October 23rd. Samples included both swabs and water from the hot tub and swabs from the interior of the shower heads in the women's showers. Only the women's showers were sampled because all cases occurred in women at the facility. All environmental samples obtained from Fitness Club A collected on October 23rd were culture negative for *Legionella pneumophila*. It should be noted that the chlorine reading of the samples upon arrival at the laboratory on October 29th was between 0.2-0.3 ppm which could indicate some remaining bactericidal activity during sample transport.

One additional case was linked to Fitness Club A through active surveillance and through re-interviewing willing and accessible legionellosis cases reported January 1st to November 1st in Orange County. All three of the confirmed cases had underlying health conditions, making them more susceptible to Legionnaires' disease. The only common exposure among the three cases was visiting this facility during the 14 days prior to their reported illness onset. Exposure occurred between June 11 and September 26, 2008 and included both the hot tub and the women's showers. No common community exposures outside Fitness Club A were identified among the patients.

Environmental inspection observations at the fitness club hot tub indicated conditions that could possibly support biofilm production and the harboring of *Legionella* bacteria. Maintenance logs indicated chlorine levels below 2 ppm intermittently (five days) during September 2008. The October 14th inspection also showed inadequate disinfection and pH levels. There was no record of routine scrubbing or supershocking of the hot tub. The improper use of the required two filters for the hot tub created a condition where a large volume of water was passing through an insufficiently sized filter. The temperature of the hot water heater supplying water to the showerheads was not available. This information, along with the epidemiologic information gained from interviews with the confirmed cases, implicates Fitness Club A as the source for each case's infection. The negative laboratory results on the environmental specimens could have been due to many factors including: laboratory error; sampling error; organism not present in detectable quantities for methods used; or the organism not present at time of sampling.

Legionella **Positive Environmental Samples from a Hot Tub at a Local Resort Hotel, Orange County, December 2008**

The Florida Department of Health was notified on December 4, 2008 by the Centers for Disease Control and Prevention (CDC) of a confirmed case of Legionnaires' disease in a 60-year-old man who was a resident of England. Initial information provided by the CDC indicated that the patient's onset date was November 23, 2008 and he stayed at Hotel A in Orlando, Florida from October 20th through November 13th. Hotel A's hot tub was epidemiologically implicated as a source for five cases of Legionnaires' disease in March of 2008 (see previous summary). All available case information was forward to the Orange County Health Department (OCHD) on December 4th for surveillance and investigation.

Environmental samples were collected by OCHD at Hotel A, including samples from the hot tub implicated in the previous outbreak. Laboratory tests on the samples collected from the hot tub were positive for *Legionella pneumophila* serogroup 1. The finding of *Legionnella pneumophila* serogroup 1 in a hot tub indicates chronically low disinfection levels and insufficient maintenance practices to ensure prevention of the spread of communicable diseases. The previous documented history of sanitation deficiencies and a previous outbreak of five cases of Legionnaires' disease linked to exposure to the hot tub at Hotel A indicates a continual pattern of improper maintenance and adherence to appropriate sanitation procedures. The OCHD closed the hot tub at Hotel A on December 5, 2008. It will remain closed until specified revisions are made to the hot tub that will ensure proper operation and sanitation, and therefore reduce the risk of the public acquiring a communicable disease.

Additional resources:

Eisenstein L, Bodager D, "Outbreak of Legionellosis Associated with Exposure to a Hotel Outdoor Hot Tub, Orange County, Florida, March 2008", *Florida Journal of Environmental Health*, Fall, 2008, Issue 200, p.14-19.

Listeriosis

Listeriosis Case with Fetal Demise, Volusia County, May 2008

In May 2008, the Volusia County Health Department investigated two laboratory confirmed cases of listeriosis. The index case was a 37-year-old woman, who was 27 weeks pregnant when a decrease in fetal movement and severe fetal tachycardia necessitated a C-section. The infant was delivered and expired within a week after birth. Cultures taken of maternal uterine tissue and the infant's blood were positive for *Listeria monocytogenes*. These laboratory results were confirmed by the Bureau of Laboratories-Jacksonville.

The patient was interviewed and a four week food history and social history was acquired. There was no history of travel or animal contact, except for two healthy household dogs. The woman did report eating out frequently, three to four times a week during the time period surveyed. Various restaurants and take out foods were consumed by the woman, including cold cuts eaten frequently in salads and sandwiches. A definitive food source was not identified.

Additional resources

http://www.cdc.gov/nczved/dfbmd/disease_listing/listeriosis_gi.html
http://www.fsis.usda.gov/Fact_Sheets/Listeria_monocytogenes/index.asp

***Listeria monocytogenes* in an Infant, Palm Beach County, October 2008**

On October 27, 2008, Palm Beach County Health Department's Epidemiology and Disease Control Program was notified by a local hospital's infection control department of a positive blood culture for *Listeria monocytogenes* in a three-day-old infant. This baby was born three weeks early as a twin via a C-section. Because the babies were born early, as protocol, a "blood screen" was conducted. Both the mother and the other twin cultured negative for *Listeria*. Upon further investigation, it was found that on October 3rd the mother developed a stuffy nose and cold-like symptoms. On October 8th, she developed a low grade fever at which time her doctor put her on a Z-pak (azythromicin). The mother stated that her fever never really went away until after she delivered. The baby was born with poor tone, poor respiratory effort, and was intubated. The baby had a scattered exanthema on her torso and extremities, and was placed on ampicillin, gentamicin, and acyclovir. Upon interview with the mother, it was found that during the month prior to onset she consumed one Italian deli sandwich from an establishment, some boiled shrimp from another establishment, and a lot of fresh salads and raw vegetables throughout the pregnancy. During the month prior to onset, the mother did not consume any hotdogs, soft cheeses, unpasteurized products, or refrigerated smoked seafood. On October 31st, the Florida Department of Agriculture tested 13 samples from the Italian deli/market where six of the family members ate approximately one month earlier. All samples tested negative for *Listeria*. No definitive source for the infection was identified. The infant recovered from the illness.

Measles

Confirmed Case of Measles in a Traveler, Sarasota County, December 2008
On December 15th, a probable case of measles was reported to the Sarasota County Health Department (SCHD). The case, a 14-year-old traveler from England, had onset of headache and mild cough on December 13th immediately before beginning a family trip to Florida. The family arrived in Tampa on December 13th and flight information was forwarded to the Bureau of Immunization to notify the Centers for Disease Control and Prevention. On December 14th, a fever of approximately 102° F was measured and a rash appeared on the child's chest and legs. The father immediately suspected measles, as he was aware of an ongoing outbreak at the child's boarding school in England. The child was taken to a walk-in clinic that same day, where the father informed the clinic of his suspicion of measles. The child was isolated in the car until the exam and wore a mask when taken through the clinic. The doctor did not order any diagnostic tests and diagnosed the child with acute bronchitis/pharyngitis. The child was prescribed a Z-pack (azythromycin) and pain medication. After consulting the physician at the child's school in England, the father called the SCHD immunization clinic to inquire about obtaining the MMR vaccination for the family. This call triggered the epidemiologic investigation, as SCHD was not informed by the clinic physician of the family's suspicion of measles.

On December 15th, the rash was covering most of the child's body and was characteristic of measles based on pictures examined by SCHD nurses. As of December 15th, symptoms included dry heavy cough, fever, generalized aches/pains, sore eyes, and generalized rash. All three household contacts had incomplete vaccination history with no history of disease. The father (no history of vaccine/disease) was administered immunoglobulin (IG) on December 15th, and the mother and sibling (history of a single vaccination) were administered IG on the 16th, because additional IG had to be ordered. Measles vaccination will be sought by the group in five months.

Blood and urine specimens obtained from the case were tested for measles and rubella IgG/IgM. Results were positive for measles IgM. The activities of the case were limited to the airport, hotel, and doctor's office. The doctor at the walk-in clinic received MMR vaccination on the 17th due to unknown immunity.

On December 18th and 19th a measles advisory was sent to local emergency departments, walk-in clinics, pediatricians, and primary care physicians to notify them of the case and the possibility of secondary cases presenting from December 20th to January 4th. No secondary cases were detected.

Meningococcal Disease

Fatal Meningococcal Disease Case, Sarasota County, March 2008
On Saturday, March 29th, the Sarasota County Health Department (SCHD) received a report of a confirmed case of meningococcal meningitis in a 68-year-old woman. She presented to the emergency department (ED) on Thursday, March 27th, with a chief complaint of confusion and weakness. The physicians noted a rapidly progressing illness with fever, multiple petechiae, a purpuric rash on face/legs/chest/arms, hemoptysis, and disseminated intravascular coagulopathy. The patient required intubation in the ED. The gram stain was initially reported as gram positive cocci, but was corrected to gram negative diplococci after admission. Cerebrospinal fluid (CSF) and blood cultures were positive for *Neisseria meningitidis* on March 29th. This initiated a report from the hospital laboratory to the Bureau of

Epidemiology on-call epidemiologist, who notified SCHD via the 24/7 contact line.
The case's infectious disease physician was contacted and she agreed to prophylax the case's husband and notify him of the diagnosis. The husband was also contacted by SCHD to determine the case's other close contacts. Three close family contacts that visited the prior week, and were now home in Indiana, were contacted and agreed to seek prophylaxis from their family physician. No other at-risk contacts were identified by SCHD. The hospital ED provided prophylaxis to eight contacts (five ED staff, three paramedics/firefighters) that they considered to be at risk. The woman died on March 30th.

Meningococcal Disease in a Daycare Center, Miami-Dade County, May 2008
On May 17, 2008, the Miami-Dade County Health Department (MDCHD) after-hours nurse on-call received a report of a laboratory result positive for meningococcal meningitis (*Neisseria meningitidis*). The patient was a two-year-old boy seen in the emergency department (ED) on May 12th for abdominal pain and discharged home. On May 15th, the child had the following symptoms: cough, fever, rash, lethargy, nausea, and vomiting. On that date, the child was taken once again to the ED by his parents and preliminary tests (CSF cultures) were done and the child was admitted. On May 16th, the hospital laboratory reported gram positive cocci from the CSF and the child was transferred to the pediatric intensive care unit. On May 17th, the preliminary result was re-evaluated by another laboratory team and found to be gram negative diplococci. On May 20th, the Bureau of Laboratories identified and confirmed the CSF isolates as *Neisseria meningitidis*, Group B. Household contacts, including well siblings, were prophylaxed and other close contacts were identified. The child's mother reported being pregnant and in good condition. She was referred to her obstetrician where she received prophylaxis. A parent letter was provided to the daycare on May 19th.

On May 20th, an Epidemiology and Pharmacy team from the MDCHD went to the child's daycare to educate and distribute prophalyxis to the close contacts. A total of 40 close contacts from the daycare center received prophylaxis (Rifampin). There was no travel history and no known ill close contacts reported. The child was admitted at the hospital for one week and was subsequently discharged home on May 27th.

Probable Meningococcal Meningitis in an Airline Passenger, Palm Beach County, May 2008
On May 21, 2008, the Palm Beach County Health Department (PBCHD) was notified by the infection control practitioner (ICP) at a local hospital of a case of suspected bacterial meningitis. The patient was a 41-year-old woman, with a history of headache, backache, and fever for three days. She traveled by air from London to West Palm Beach with a transfer in Philadelphia the day prior to hospital admission.

Initial laboratory results showed cerebral spinal fluid (CSF) that was cloudy, with elevated protein, white blood cells, and decreased glucose. No organisms were seen on the gram stain and culture results were still pending. According to the ICP the patient had received Rocephin 1 gram IV about two hours prior to the lumbar puncture. The attending physician felt the case fit the profile of bacterial meningitis and started treatment prior to obtaining the specimen for culture and gram stain. PBCHD notified the regional epidemiologist and the Centers for Disease Control and Prevention Miami Quarantine Station. The case was discussed with the Miami Quarantine Station staff and a decision was made to wait for results of the CSF culture before making a decision to prophylax any of the other passengers on her flight.

Culture results on May 22nd showed no growth after 24 hours. It was thought that the Rocephin given before the CSF collection could provide a false negative result. After further discussion with the Miami Quarantine Station, the patient was contacted for specific information regarding her seat location on the flight from London to Philadelphia, which was an 8.5 hour flight. The second portion of the flight was from Philadelphia to West Palm Beach did not meet the threshold of a flight lasting over eight hours and so was not likely to put passengers at risk for contracting disease. The initial report from the airline showed no one was assigned to the seat next to her on the London to Philadelphia leg of her flight. However, when interviewed, she identified that she had changed seats at the beginning of the flight and sat next to another couple for the entire flight. The Miami Quarantine Station decided to recommend prophylaxis for the couple sitting next to her and worked with the airline, the Philadelphia Quarantine Station, and the local health department to contact them. PBCHD recommended prophylaxis to the patient's household and family contacts here and in London.

Mycobacterium abscessus

***Mycobacterium abscessus* Infections Associated with Epidural Injection at a Pain Clinic, Lee County, February 2008**

In February 2008, the Lee County Health Department (LCHD) was notified by a concerned infectious disease physician about a possible cluster of *Mycobacterium abscessus* infections associated with epidural injections administered by a local pain center. The LCHD and Bureau of Epidemiology investigation that followed identified a total of five laboratory confirmed cases and two probable cases of *M. abscessus* infection that had received epidural injections at a single pain clinic. A review of records identified two consecutive days in December 2007 when the five culture-confirmed patients were given epidural injections. The five patients developed infections at the site of the injection 20 to 81 days post injection. Molecular laboratory analysis by the Bureau of Laboratories-Jacksonville and the Centers for Disease Control and Prevention (CDC) confirmed the strains were identical by pulse-field gel electrophoresis (PFGE). In order to exclude contaminated drugs at the manufacturer level, the United States Food and Drug Administration (FDA), the CDC, and a pharmaceutical company were contacted to determine if there were similar outbreaks reported in other parts of the United States; none were reported. A review of injection practices revealed that the clinic was using vials of medications that did not contain preservatives and that they were using single use vials on multiple patients. While it is unknown how the *M. abscessus* was introduced into the clinic practice, breaks in standard infection control appear to have contributed to the transmission of the infection to multiple patients.

Norovirus

Norovirus Outbreak Associated with a Swim Team, Broward County, April 2008

In April 2008, the Broward Regional Environmental Epidemiologist received a report regarding a possible foodborne disease outbreak among members of swim team from Michigan who were in Florida for a competition. A retrospective cohort study was performed by the Broward Regional Environmental Epidemiologist and the Broward County Health Department Epidemiology Team. Fifteen of the 27 swim team members met the case definition for the outbreak and all 27 members were interviewed. Clinical samples were received from one of the ill swim team members as well as an ill food-worker at the hotel restaurant and were submitted for analysis to the Bureau of Laboratories. The Bureau of Laboratories-Tampa detected Norovirus G2 in both samples. Gene-sequencing was performed on both samples to determine the virus strain. Results from these sequencing studies demonstrated that the food-worker and the swim team member had the same virus strain.

Multiple statistically significant food and water items were found in the epidemiological analysis; however the food/water source of the outbreak could not be determined. It was noted in the environmental investigation that the conditions in the restaurant that catered the swim team's meals were favorable for a food-worker to contaminate a ready-to-eat food item or beverage (such as water) with Norovirus via bare hand contact. The only common source that the swim team and the food-worker had in common was the hotel restaurant; but it is uncertain if this food-worker was the source of the illnesses since the date of onset for this employee did not occur prior to that of the swim team members. No additional reports of illness were received from other guests staying at the hotel.

Norovirus Illness in Individuals Attending a School Field Trip to Washington, D.C., Duval County, October 2008

The Florida Department of Health was notified on October 30, 2008 of a middle school group from Duval County that became ill during their annual Washington, D.C. field trip. The group (36 children and four adult chaperones) arrived in the Maryland/D.C. area on October 26th. The index patient became ill with nausea and vomiting on October 29th. Subsequently, a total of 25 ill children and three adults were evaluated in the emergency department of Children's Hospital in D.C. The District of Columbia Epidemiology Program was notified and a team was deployed to the hospital to interview the group. Initial symptomology suggested a viral etiology; however, the District of Columbia Epidemiology Program was unable to obtain stool or vomitus specimens for identification of the pathogen.

The school group returned via bus to Jacksonville on the afternoon of October 31st, where it was met by Duval County Health Department (DCHD) Epidemiology staff and a regional epidemiologist. Information regarding viral gastroenteritis and stool specimen collection kits were distributed to parents. In addition, several questions were answered regarding illness, possibility of transmission, as well as personal and environmental hygiene concerns.

Seven sets of stools specimens (five students and two chaperones) were subsequently collected by DCHD Epidemiology staff for analysis by the Florida Department of Health, Bureau of Laboratories-Jacksonville. All seven specimens were reported as positive for Norovirus G1. The school engaged in enhanced environmental cleaning, and symptomatic students were excluded accordingly. No secondary illnesses were reported.

Since there was still some question regarding the etiology of this outbreak and the Maryland Department of Health and Mental Hygiene and D.C. epidemiologic investigation yielded no probable foodborne or environmental sources, the specimens were forwarded to CDC's National Calicivirus Laboratory along with recently collected specimens from other local community outbreaks. All specimens were confirmed as Norovirus G1.4. Considering that the Norovirus strain from the school trip matched recent local Duval County clusters, the possibility exists that this outbreak had a local etiology.

Norovirus Outbreaks at Healthcare Facilities, Sarasota County, October-November 2008

Beginning in October, the Sarasota County Health Department (SCHD) saw an increase in Norovirus activity in several healthcare facilties. A local hospital detected an increase in Norovirus illness among employees beginning October 6th through November 18th. A total of 44 employees reported symptoms of gastrointestinal illness. In addition, from October 5th through November 18th, there were 18 nosocomial cases, and five suspected cases in visitors. Fifteen stool specimens from patients were sent to the Bureau of Laboratories-Tampa and were positive for Norovirus G2. Control measures included: exclusion of symptomatic employees for 48 hours after symptom resolution; the use of 1:10 bleach solution for cleaning of high touch/contaminated surfaces and during terminal cleaning of all patient rooms; contact isolation for all suspected patient cases including using masks when around symptomatic persons or cleaning; and placing notices at hospital entrances.

On November 12th, a Sarasota County nursing home reported 15 cases of gastrointestinal (GI) illness with an onset of November 11th. The investigation revealed no ill kitchen staff, and an investigation of the kitchen found the kitchen was satisfactory. Through November 24th there were 68 resident cases, resulting in a 69% attack rate among the 98 residents. There was one resident death associated with this GI outbreak. Additionally, there were 38 staff cases, for an attack rate of 28% among the 135 staff. The pathogen was confirmed to be Norovirus G2 by the Bureau of Laboratories-Tampa. Control measure included: use of 1:20-1:50 bleach cleaning of high touch/contaminated surfaces; exclusion of ill staff for 48 hours after resolution of symptoms; cancellation of activities, visitation, and admissions; emphasis on soap and water hand hygiene; and use of contact precautions with masks when necessary. It was discovered that on November 3rd a case-patient was transferred to this nursing home from the hospital described above for rehabilitation. The facility resumed allowing visitors and admissions on November 26th, with notices posted about the increase in GI illness and the need to maintain good hand hygiene.

Norovirus Outbreaks in Four Long-Term Care Facilities, Charlotte County, December 2008
On December 5, 2008, the Charlotte County Health Department (CCHD) was notified by infection control staff at a local hospital about a cluster of gastrointestinal (GI) illnesses. Six residents from a long-term care facility (LTCF) were seen in the emergency department with symptoms of nausea, vomiting, and diarrhea. Subsequently, three similar outbreaks at LTCF's were reported over the next two weeks. CCHD Epidemiology and Environmental Health staff conducted joint investigations at all four facilities. Infection control measures were implemented immediately and active surveillance was initiated. In total, 135 cases of GI illness were associated with these outbreaks. Onset of illness ranged from November 29–December 17. Stool specimens collected from three facilities tested positive for Norovirus G2. The fourth facility was unable to collect specimens for testing, but symptomology was consistent with Norovirus.

No epidemiological link was identified between the four facilities. Data collected from the investigation indicate person-to-person transmission rather than a common source of infection. Given the hardy nature of this virus and its high infectivity, the organism was easily spread throughout these facilities. The source of introduction of virus into these facilities remains unknown.

Pertussis

Pertussis in an Unvaccinated Cohort, Clay County, October 2008
In October 2008, the Clay County Health Department (CCHD) investigated pertussis cases in an unvaccinated family cohort. The family members included five children and two adults (parents). The mother called the health department to report the children had been seen by their family pediatrician with four out of five children being symptomatic. Symptoms included: persistent cough (4); paroxysmal cough (4); whoop (2); posttussive vomiting (3); stridor (2); and facial flushing (4). All five children were tested by PCR for presence of *Bordatella pertussis*, three tests were positive, one negative, and one indeterminate. The investigation revealed the children were home schooled and not vaccinated. Investigation also revealed a total of eight close contacts. Three of these contacts were family, the parents and an asymptomatic sibling. The other five contacts were neighborhood children who played with the cohort. The benefits of vaccinations and possible side effects were discussed with mother in great detail but she refused vaccinations for her children. The CCHD took this opportunity to send out a press release regarding pertussis and CDC recommendations for Tdap immunizations. The CCHD and local hospital also took this opportunity to offer Tdap vaccines to employees. Currently, the local hospital has implemented a mandatory Tdap immunization policy for its employees.

For more information about this investigation please visit
Scoggins, K., "Pertussis in an Unvaccinated Cohort in Clay County," *Epi Update*, 2008; December, http://www.doh.state.fl.us/Disease_ctrl/epi/Epi_Updates/2008/December2008EpiUpdate.pdf

Rabies

Rabid Horse, Glades County, January 2008
In January 2008, the Glades County Health Department (CHD) received a report of a horse that had become ill, aggressive, showed signs of paralysis, and died within 24 hours of exhibiting symptoms. A local veterinarian recognized this as possible rabies and referred the family to the Highlands CHD. Due to the coordinated efforts of the Highlands CHD, the Glades CHD, and under the guidance of the Florida

Bureau of Environmental Public Health Medicine, exposed contacts (including the owner who had been attacked and bitten by the horse) were promptly identified and rabies post-exposure prophylaxis (PEP) was initiated the same day.

The Florida Bureau of Laboratories (BOL) was consulted regarding the harvesting and transporting of the brain. Because no standard established protocols or resources were available to address decapitation or brain harvesting of a large animal, a local animal sanctuary was elicited to provide this service, assisted by the local animal control office. Glades CHD transported the specimen directly to the Bureau of Laboratories location in West Palm Beach who reported a positive Fluorescent Rabies Antibody test the next day.

Simultaneously, the Florida Department of Agriculture and Consumer Services was notified and an onsite inspection was conducted in conjunction with the Glades CHD Environmental Health office. None of the farm animals had been vaccinated against rabies. One other horse had been bitten by the rabid horse, but had been euthanized and buried under the direction of the local veterinarian. No other animals on the farm had been exposed.

The owner ultimately admitted ownership of a pet raccoon that he also had previously euthanized. All of the farm animals were vaccinated for rabies after this event. All six exposed human contacts completed the rabies PEP series. In August 2008, the BOL reported the Monoclonal test results as Raccoon A strain.

Rabid Raccoon, Clay County, June 2008

The Clay County Health Department (CCHD) received a positive rabies animal laboratory result on a raccoon via Merlin on June 19, 2008. Investigation revealed the baby raccoon was found in a neighboring county and brought into Clay County by that individual. The person who found and transported the raccoon operates a wolf sanctuary and could not keep the animal. The raccoon was given to a local individual who already had a pet raccoon and claimed to have a license for raccoon rehabilitation. Further investigation revealed that the individual did not possess a license. The baby raccoon became ill approximately three days after being found and was taken to a local veterinarian. The veterinarian immunized the raccoon against rabies and distemper. The raccoon was then sent home. Later in the evening, the raccoon started to have convulsions. It was taken to the local emergency veterinarian who immediately euthanized it. Arrangements were made to have the animal tested for rabies at the Bureau of Laboratories-Jacksonville; results were positive for rabies.

The exposures to this raccoon included kissing the raccoon, allowing the raccoon to bite and ”gnaw” hands and forearms, and sleeping with the raccoon. The animal control personnel questioned the owners regarding the adult raccoon the individual also had as a pet. This adult raccoon was kept in a cage in the garage. The adult raccoon did not have contact with the baby raccoon. The Florida Fish and Wildlife Conservation Commission as well as Florida Department of Health public health veterinarians were notified about the presence of the adult raccoon. After consultation, it was determined that no further follow-up was needed for the adult raccoon. A total of eight people received rabies post-exposure prophylaxis. CCHD worked closely with the Naval Hospital in Jacksonville to get five of the exposed contacts the necessary rabies prophylaxis. One of the contacts had gone to New York. Prophylaxis for this contact was started in a New York emergency department and the local health department in New York was also notified. Post exposure prophylaxis was continued in Clay County upon the contact's return.

Partners included Clay County Animal Control, County Manager's office, the local hospitals, including the U.S. Naval Hospital Jacksonville, St. Johns County Health Department, the Florida Department of Health Division of Environmental Health, Florida Fish and Wildlife Conservation Commission and the local media.
For more information about this investigation please visit

Wolfe, C., "Rabid Raccoon in Clay County". *Epi Update*, 2008;July, http://www.doh.state.fl.us/disease_ctrl/epi/Epi_updates/2008/July2008EpiUpdate.pdf

Rabies Exposure Due to Contact with a Cat, Alachua County, July 2008

On July 24, 2008 the Alachua County Epidemiology office was notified by the county Environmental Health office of a positive rabies laboratory result on a cat. The investigation was started immediately. The owner of the cat lived in Gilchrist County and the cat was seen at an animal hospital in Alachua County. The owner of the cat was interviewed and indicated that the cat was a stray that came to their yard approximately a year ago and they started feeding it. The cat eventually became their pet. The cat was never vaccinated against rabies.

On July 15, 2008, the cat was seen at a local animal hospital for symptoms of a urinary tract infection. It was treated with antibiotics and was sent home. On July 18, 2008, the cat was seen again for a re-check visit at the same animal hospital. The condition of the cat was worsening. The cat was not eating nor drinking and still had urinary incontinence. According to the veterinarian, the cat was panting and showing intermittent aggressive behavior. Pain medication was prescribed and the cat was sent home. The cat died that same evening. Animal Services picked up the cat and on July 22nd Alachua County Environmental Health sent the specimen to the Bureau of Laboratories-Jacksonville for rabies testing and received the positive report on July 23rd.

There were 15 people exposed to the cat and they all received rabies post-exposure prophylaxis (PEP). The owner, the spouse, and mother-in-law lived in Gilchrist County and the Gilchrist County Health Department (CHD) coordinated their PEP. Twelve employees of the animal hospital received PEP as well. Eleven employees went to Alachua CHD and one employee went to Orange CHD.

PEP was not recommended for the Animal Services staff because the employee handled the cat with proper personal protective equipment (triple gloves, gown, mask, and goggles).

Rabies in a Kitten, Palm Beach County, July 2008

On Monday, July 28th, the Palm Beach County Health Department (PBCHD) received a laboratory report from the Bureau of Laboratories indicating a positive result of rabies on an eight-week-old kitten that died on July 26, 2008. Upon further investigation it was found that the stray kitten was rescued in early July. The kitten was nursed back to some degree of health at a private home for about two weeks before veterinary care was sought as it was not improving. The kitten was kept at this veterinary office for about one week during which time it scratched and/or bit 15 staff members. On July 26th, the kitten expired and was sent to the Bureau of Laboratories for rabies testing. Once the animal was found to be positive, PBCHD contacted all exposed individuals to coordinate post-exposure prophylaxis immediately. Some individuals were exposed as early as July 19th and one individual from the veterinary clinic was bitten on the face on July 20th. The exposed staff members were veterinary technicians and three receptionists and had not received rabies pre-exposure prophylaxis. The veterinarians were the only staff members that had received prior pre-exposure prophylaxis. More stray cats from the area where the kitten was found were trapped and tested by Animal Care and Control to assess if any other animals in the community were positive for rabies. All exposed individuals continued to receive treatment throughout the month.

Rabid Raccoon, Central Florida, August 2008

On August 22, 2008, the Orange County Health Department was notified by the Brevard County Emergency Operations Center in the aftermath of Hurricane Fay of a raccoon that tested positive for rabies at the Bureau of Laboratories-Tampa. The raccoon was submitted for testing by a veterinarian located in Orange County who delivered the specimen to the Animal Diagnostic Laboratory in Kissimmee. The "hairless" raccoon had been transported from a Seminole County dumpster to a wildlife rehabilitation facility in Orange County by the Fish and Wildlife Commission where it gave birth to two babies. The raccoon broke through quarantine quarters and was attacked by other raccoons in the facility while in captivity. It was taken to a veterinarian after exhibiting symptoms of illness. The babies and all other raccoons in the facility were destroyed by animal services.

A total of 14 people received rabies post-exposure treatment due to their exposure to the rabid raccoon and/or its babies. Three people receiving treatment were from the veterinary clinic and used no personal protective equipment when handling the raccoon and its babies. Exposures included saliva contact to open wounds or cuts through examination of the oral cavity. Eleven people from the wildlife rehabilitation facility receiving treatment reported no use of personal protective equipment when handling the raccoon or its babies. Exposures included bites, scratches, and contact with saliva through open cuts. One of the wildlife rehabilitation workers took the baby raccoons home to feed and care for them, resulting in the exposure of a child.

Improved communications between Environmental Health and Animal Services and a revised policy is planned. This incident reinforces the importance of interagency collaboration and clear communications in achieving public health objectives. Another important observation is the impact that a natural disaster may have on usual public health practices.

Rash Illness, Un-Confirmed Etiologic Agent

Rash Investigation, Collier County, January 2008
In January 2008, the Collier County Health Department (CCHD) was notified by a medical provider of a pruritic rash illness among employees at a local pet store. The rash was located on the trunk, arms, and neck of symptomatic persons, and one employee also had rash on his legs. Skin scrapings and punch biopsies were negative for mites and scabies and serum cholinesterase results were within normal limits. Employees were diagnosed with irregular dermatitis and symptomatic persons were treated with steroid medication.

The CCHD Epidemiology program conducted interviews with symptomatic and asymptomatic employees, and an onsite inspection of the facility was also conducted. None of the employees that worked in the veterinary clinic or the grooming area were symptomatic. This area is physically separated from the retail area of the store where the symptomatic employees worked. The results of a private air quality inspection completed on February 7th indicated that mold (*Stachybotrys*) was found on the floor of one room, in air samples from the same room, and on the air conditioning plenums. Samples of new food products, live plants, and animal products used in the store (litter, bedding, food) were tested by a consulting parasitologist. The samples tested negative for mites and other organisms. The animals in the store were examined by a veterinarian and none showed signs of illness.

On February 20th, CCHD Epidemiology staff, a Department of Health Environmental Health Specialist, and private consultants conducted a joint inspection of the facility. Findings revealed several areas for improvement. Recommendations were made to dispose of all dog food infested with mites, sanitize and thoroughly clean the air conditioning system, including the air handler, and perform deep cleaning of the entire facility. The recommended cleaning was done, and employees' symptoms resolved. To date no etiologic agent for the rashes had been identified.

Salmonellosis

Salmonellosis in Children Associated with Pet Reptiles, Palm Beach County, September 2008
The Palm Beach County Health Department had three reported cases of salmonellosis in children related to exposure to reptiles in the home during the month of September. The first case was in a 16-month-old child. Her onset of illness was September 15th when she developed a fever of 105°F. *Salmonella* was cultured from a urine specimen. The family had a pet turtle in the home at the time of the child's illness, but removed it after being counseled by their physician.

The second case was in a five-year-old child. He developed abdominal pain and diarrhea on September 25th. He was seen that day by his physician and a stool specimen was obtained. The stool specimen was cultured and was positive for *Salmonella* serogroup B. This family also had a pet turtle at the time of the child's illness but removed it after being counseled by the family physician.

The third case was in an 11-week-old infant. He had developed diarrhea and a fever on September 26th. He was admitted to a hospital where *Salmonella* was identified from a blood culture. He was treated with several antibiotics. At the time of his illness the family had an iguana in the house as a pet. The iguana was removed after discussion with hospital staff.

None of these children attended daycare or had exposure to any individuals with known gastrointestinal illness. The families denied eating in any restaurants during the incubation periods, or exposure to raw or undercooked food or poultry.

Additional resources
King D, Stanley G, "Salmonella and Reptiles", *One Health Newsletter*, 2009, Winter. Available online at: http://www.doh.state.fl.us/Environment/medicine/One_Health/OHNLwinter09.pdf

Selenium Poisoning

Investigation of Excess Selenium in a Nutritional Supplement
On Friday, March 21, 2008, the Florida Department of Health (FDOH) Food and Waterborne Disease Program was contacted by the Florida Poison Information Center (FPIC). The FPIC had been notified by the United States Food and Drug Administration (FDA) that the Washington County Health Department had received a report from a local health care provider that several people had became ill after consuming a nutritional supplement called Total Body Formula. Symptoms included unusual hair loss, discoloration of finger nails, muscle cramps, and blisters on the tongue and lips. An investigation of the complaint was launched on Monday, March 24, 2008 by the Northwest Florida Regional Environmental Epidemiologist and a Council of State and Territorial Epidemiologists Fellow assigned to FDOH.

Florida had a total of 64 reported confirmed or probable cases of selenosis in 12 counties attributed to the consumption of the tainted nutritional supplement. Over 90% of the cases lived in Washington County or in counties adjacent to Washington County. Ill people who were distant from Washington County were primarily internet or mail order purchasers. The age of the cases ranged from 2 to 93 years of age and 69% were female. Symptoms reported were joint pain (85%), unusual hair loss (70%), diarrhea (70%), nausea (61%), fatigue (59%), discolored nails (56%), headache (42%), tingling in arms or legs (39%), vomiting (25%), and fever (17%). Private laboratory results, as well as FDA laboratory results, confirmed that excessive amounts of selenium had been introduced into the products consumed by the individuals experiencing symptoms of selenium poisoning (selenosis). There was a national recall of the implicated product and the manufacturing company no longer maintained a website. There were legal issues surrounding the product and company which were ongoing as of the end of 2008.

Staphylococcus aureus

Staphylococcus aureus **Outbreak in a Pain Management Facility, Leon County, March 2008**

On March 24, 2008, the Bureau of Epidemiology was contacted by a physician in Leon County, Florida regarding an observed increase in invasive staphylococcal infections, including bacteremia and epidural abscesses, in individuals recently treated at the physician's free-standing pain management clinic. At the time of report, eight individuals were hospitalized for related illnesses, and the report was referred to the Leon County Health Department (LCHD). On the afternoon of March 24th, LCHD performed a site visit and walk-through at the clinic. Thirty-three environmental specimens were collected at that time including opened vials of injectable medications that were currently in use. Interviews with staff were also conducted and it was determined that the clinic had not seen patients since March 20th, and that the physician had voluntarily closed the clinic to procedures after identifying the increase in illnesses.

All patients receiving injection procedures during March 2008 were interviewed by LCHD staff. Ninety-seven people had injection procedures in the month of March, and twenty-four of those people were identified as cases. The cases either had parameningeal syndrome, epidural abscess, or septicemia. Sixteen patient specimens were available and were forwarded to the Bureau of Laboratories-Jacksonville. All patient specimens were positive for *Staphylococcus aureus* and were indistinguishable by pulse-field gel electrophoresis. Of the 33 environmental specimens that were tested, two were positive for bacterial contamination. One open vial of Omnipaque was contaminated with *S. aureus*, but this was not the same strain that was isolated from the patients. The other open vial of Omnipaque grew another bacterium, which was not *S. aureus*. Upon identification of bacterial growth in open vials of Omnipaque, two unopened vials from the same lot were sent to the Centers for Disease Control and Prevention in Atlanta, Georgia, for sterility testing. Sterility testing was completed on April 24, 2008, and the unopened vials of medication were not found to have any bacterial contamination. There were eight nasal cultures obtained from clinic employees. Two of the eight were positive for two different strains of *S. aureus*. Neither of these strains matched the strains isolated from the patients or the *S. aureus*-positive bottle of Omnipaque.

All of the ill individuals were treated in only one of the two procedure rooms, but all of the medications and equipment had been removed from the rooms prior to the LCHD site visit on March 24th. The initial walk-through of the clinic and subsequent interviews with current and former employees revealed several breaches in infection control practices. Among these were: the failure to use masks during medication set-up or pain management procedures, inconsistent usage of gloves when handling open bottles of injectable medications, and the use of single dose vials with no preservative as multidose vials over multiple days without refrigeration. In addition, combining opened vials of the same type of medication together was reported.

This outbreak illustrates the need for continued vigilance in outpatient procedure infection control. Also illustrated is the need for tighter regulatory requirements on physician-licensed outpatient procedure clinics.

Methicillin-Resistant ***Staphylococcus aureus*** **Death, Osceola County, October 2008**

The Osceola County Department's (OCHD) Epidemiology Program received a call on September 29th, 2008 from a school nurse regarding the possible death of an 18-year-old student football player over the weekend due to bacterial meningitis. OCHD was able to verify that the individual was evaluated by the emergency department (ED) on the evening of September 26th for lower back spasms. At the ED, the patient was treated with prescription pain medicines (Toradol and Norflex) and sent home. The patient had a rigorous practice and a game earlier in the week, consequently, the ED presumed that the pain was due to a football-associated injury. Within hours following the ED visit, the patient developed a rash and was given Benadryl at home by his mother.

On September 27th at 4:00 a.m., the patient returned to the ED with a diffuse rash and complaining of shortness of breath. The initial impression by the ED was that the patient was having an adverse reaction to the prescription pain medicines. Upon examination, the patient had a fever of 102°F and was malaised. Additional Benadryl was administered. While the rash improved, the patient's status did not. Blood and sputum samples were collected. Due to shortness of breath, a chest tube was inserted. The blood and sputum samples came back positive for methicillin-resistant *Staphylococcus aureus* (MSRA), and the patient was treated with Gentamicin and Zyvox. The patient's condition continued to deteriorate. On the evening of September 28th, the patient expired due to septic shock.

On October 9th, a second student at the same high school had a wound that cultured positive for MRSA. Several more students from the high school were either seen at, or admitted to, local hospitals with a diagnosis that included MRSA exposures.

A site visit was conducted at the school by OCHD on October 1, 2008. During the site visit, the school informed OCHD that no other students were reported to have had skin infections. A MRSA fact sheet was drafted by OCHD and was distributed to all students at the high school on September 30th. A letter was also sent out on October 10th, informing the families of the second MRSA case at the school.

In addition to the letters, the school decided to host three question and answer sessions at the school in which the OCHD Medical Director, Environmental Health Director, Epidemiologist, and the school's sports physician were available to answer questions from concerned parents.

In order to avoid the potential transmission of MRSA in schools, the OCHD recommended that the school clean all shared sports and weight room equipment after each individual's use. The locker rooms should be cleaned daily, using the appropriate cleaner according to the manufacturer's instructions. Coaches were also recommended to check for skin infections on all contact and non-contact sports players before, during, and after practices and games in order to avoid potential MRSA transmission during sporting events. OCHD has also recommended that any student participating in contact sports, who has a wound or skin abrasion, should not participate until given clearance by a physician. The school has expanded their cleaning procedures to include all shared sports equipment.

Additional resources

The Centers for Disease Control and Preventions/National MRSA Education Initiative. (2008, September 11). *MRSA.* Retrieved October 8th, 2008, from http://www.cdc.gov/mrsa/.

A Community-Associated *Staphylococcus aureus* Death, Hillsborough County, October 2008

On October 1, 2008, the Hillsborough County Medical Examiner's office reported the death of a man in his late twenties from methicillin-sensitive *Staphylococcus aureus*. Pulse-field gel electrophoresis (PFGE) analysis determined that three isolates from different body tissues of the case (brain and both lungs) all had the same DNA fingerprint. The strain was similar but not identical to the USA 300 strain, a strain that has been implicated in previous community-associated MRSA deaths. The deceased had a history of drug use which included the use of intravenous needles. It was unknown as to whether the deceased had any hospital or healthcare exposures within the year before his death. This case was classified as a community-associated *Staphylococcus aureus* death.

Note: Deaths due to community-associated *Staphylococcus aureus* were made reportable in November 2008.

Typhoid Fever

Typhoid Fever in South Florida, Fall 2008

On September 3, 2008, the Palm Beach County Health Department Epidemiology Program reported that they were investigating two cases of typhoid fever, which the Bureau of Laboratories confirmed as cases of *Salmonella enterica* serovar Typhi (serovar Typhi) with indistinguishable patterns on pulse-field gel electrophoresis (PFGE). The infected persons were adolescents who were part of a 50-person church group that traveled to Haiti from June 15th to July 5th, 2008. The group traveled to the Port-au-Prince area, but also traveled outside of the city as well. No specific exposures were identified.

Subsequently, a review of in-depth surveillance data during the weekly Bureau of Epidemiology (BOE) surveillance meeting on October 1, 2008 revealed an unusually high number of typhoid fever cases (N = 5) for the preceding 12 weeks. This included the two cases detailed above, as well as a sporadic imported case in an 18-year-old woman from Palm Beach County who had traveled to Haiti with an onset of September 12, 2008; a sporadic imported case in a 10-year-old boy from Miami-Dade County who traveled to Bangladesh with an onset of symptoms on July 30, 2008; and a sporadic imported case in a 12-year-old boy from Clay County who had recently traveled to the Bahamas and Haiti with an onset of symptoms around August 5, 2008. Both were confirmed by the Bureau of Laboratories-Jacksonville as serovar Typhi. To further examine any possible relationships between the cases, a request was made to the Bureau of Laboratories-Jacksonville for the PFGE profiles of the serovar Typhi cases. Of the 12 cases of serovar Typhi reported as of October 2008, two clusters of identical PFGE patterns were noted. The first cluster of two cases in January 2008 was previously noted by epidemiologists at the BOE and likely represents exposure through travel to endemic regions of Pakistan and Bangladesh. The second cluster of three cases in August 2008 included the two adolescents from Palm Beach County with travel to Haiti that were known to be linked, as well as a 22-month-old girl from Broward County who was originally determined to be a sporadic case from the United States. Further follow-up investigation with the girl's family revealed she had traveled to Haiti May 3-18, 2008 before becoming ill on June 10, 2008. One month after the initial cluster with travel to Haiti was identified, a fourth serovar Typhi case also was linked by PFGE pattern. A 12-year-old boy from Palm Beach County was sent to live with relatives in Haiti from February 2008 through September 25, 2008. After returning to live with his family in Palm Beach, he presented to a local hospital on October 9, 2008 with fever, vomiting, diarrhea, and abdominal pain. He was admitted and treated for typhoid fever over the next two weeks. Subsequent PFGE typing at the Bureau of Laboratories-Jacksonville on October 31, 2008 revealed an identical pattern to the three cases found in August. Further investigation revealed the boy resided in the St. Marc's area while in Haiti, consistent with the likely exposures of the other individuals who had the same PFGE pattern.

For more information about this investigation please visit
King, D., et al. "A Tale of Typhoid in South Florida," *Epi Update*, 2008; November, http://www.doh.state.fl.us/disease_ctrl/epi/Epi_Updates/2008/November2008EpiUpdate.pdf

Unexplained Illnesses

Illness of Unknown Etiology Among Airline Passengers, Broward County, March 2008

In March 2008, the Broward County Health Department was notified about a plane diversion to the Hollywood/Fort Lauderdale International Airport due to a toxin-like illness reported by several passengers. Upon landing in Broward County, they were transported to a local hospital emergency department in Hollywood, FL. The eight passengers taken to the hospital were part of a larger group of 11 (nine family members, two friends) traveling back home to Alberta, Canada from the Dominican Republic. One of the group members reported developing symptoms (emotional lability, confusion, disorientation, dilated pupils, muscle twitching, sweating, dizziness, lightheadedness, dry mouth, and shortness of breath) prior to leaving the Dominican Republic resort while the rest of the cases did not begin experiencing symptoms until they were on the plane flying home. Symptoms reported were of varying degrees of severity with the initial cases reporting the most intense symptoms and longer durations. All symptomatic people were seated closely together on the plane, either next to each other or within one row. The only common exposure reported was skin contact with a symptomatic person while consoling them.

Clinical samples were obtained and tested at the hospital for five of the cases of which three were positive for *Cannabis*. These people reported smoking marijuana regularly; however, they reported smoking marijuana only one time while in the Dominican Republic. They denied taking any other illicit substances while on the trip. These were also the first three to report symptoms and were sitting next to each other on the plane. Additional toxicological tests were completed by the Broward Medical Examiners Office including a comprehensive drug panel, GHB, ketamine, methamphetamine analogues, and serum cholinesterase. Results for these additional tests were negative. The source of the illnesses was unable to be determined. It was hypothesized that some of group members may have been exposed to or taken an illicit/toxic substance. However, the other group members with less intense symptoms were possibly sympathetic or psychogenic in nature.

Varicella

Varicella Cluster at a Local University, Miami-Dade County, October 2008
On September 29, 2008, Miami-Dade County Health Department, Office of Epidemiology and Disease Control (OEDC) was notified by the Bureau of Epidemiology of a physician who wanted to know if a student with varicella could eat in the dining hall and go to class. The physician mentioned an additional student with varicella but did not mention any linkage among the two cases. The physician was not aware this was a reportable disease. OEDC recommended isolation of the student until all lesions were crusted.

On October 1st, OEDC received a report from the University Student Health Center of three additional cases of varicella. Initial interviews indicated all five were linked to the biology department. A recommendation letter was faxed to the University Health Center indicating the need for students/staff to receive the second dose of the vaccine and isolate all cases. On October 6th, OEDC investigators visited the biology department and toured through the students' desks and laboratory. Cases 1 (onset 7/18/08), 2 (onset 7/25/08), 3 (onset 9/4/08), and 4 (9/27/08) had close contact with each other. Case 5 (onset 9/27/08) was a music major undergraduate student who was taking biology class and laboratory, as well as four classes in the music department. No direct linkage was established to the other four cases. Only one of the five cases had documentation of the varicella vaccine.

Varicella information and notification of the cluster was posted on the Student Health Center website with links to the CDC; information flyers were placed under student doors where the undergraduate resided; a physician spoke at a biology lecture informing the students of prevention and control measures; and information was published in the school newspaper.

Vibrio Infections

An Imported Case of *Vibrio alginolyticus*, Hillsborough County, August 2008
In late August of 2008, The Hillsborough County Health Department investigated and reported a case of *Vibrio alginolyticus* in a 10-year-old girl. This positive laboratory test was an aerobic bacterial culture from a wound on the back of the girl's thigh. While on vacation during July 2008, the girl suffered a minor injury while swimming/tubing in the Adriatic Sea near the Island of Pag (Croatia). She was treated with

antibiotics for this infection. She experienced no sequelae.

Vibrio alginolyticus is a gram negative marine bacterium that causes wound and ear infections. In immunocompromised individuals and severe burn victims, bacteremia can result.

***Vibrio vulnificus* Death, Marion County, September 2008**
In September 2008, the Marion County Health Department investigated a *Vibrio vulnificus* death in a 55-year-old white man. The patient consumed raw oysters on September 21 or 22, 2008 at a raw oyster bar in Birmingham, Alabama and had symptom onset September 22nd. On September 23rd, the patient was admitted to the hospital and later expired on September 24th. A serum sample that was collected on September 23rd was culture positive for *Vibrio vulnificus* as was a wound culture. Oyster tags collected by the Alabama Department of Public Health indicated that the raw oysters were purchased from a seafood harvester in Apalachicola, FL. There were no other reported illnesses associated with those oyster beds at that time.

West Nile Virus

Two Cases of West Nile Neuroinvasive Disease, Escambia County, August-September 2008
In mid-August of 2008, the Epidemiology Program of the Escambia County Health Department was notified of an elderly man who was hospitalized with a probable case of West Nile virus (WNV) infection. Serum samples were sent to the Bureau of Laboratories-Tampa. A week later the case was confirmed as acute WNV neuroinvasive disease. Investigation revealed that the man had no travel history and had not used repellants while sitting outside at his work. He had a celiac condition which resulted in anemia and had previously had a triple bypass. His hospital course was complicated requiring two units of plasma and a PEG tube for feeding. His neurological condition was so severe that he developed respiratory problems and could not sit or stand on his own. He was transferred to an acute long-term care facility after several weeks in the hospital.

Mosquito Control was notified immediately upon receiving the probable diagnosis and sprayed the man's home zip code area and his work site. Schools and childcare centers were notified and an advisory was issued via the media.

A day after receiving the first case, the Epidemiology Department was notified of a second probable case of WNV. Serum samples were sent to the Bureau of Laboratories-Tampa. This person was a middle aged man with an immune-compromising condition who lived in the same zip code as the first man's work site. He had not traveled nor had he used mosquito repellant on a regular basis while sitting outside each evening. He had more mild symptoms than the first man, and was able to be discharged home that same week. His laboratory results were confirmatory for acute WNV neuroinvasive disease.

Mosquito Control was notified and modified the second spraying site to include the area around the second case's residence. Mosquito Control reported all sentinel chickens were free from mosquito-borne virus disease and there was not any disease present in the mosquito pooling efforts at that time. Adulticide fogging for mosquitoes was initiated after notification of the first case and was continued in compliance with usual and customary state regulations. Mosquito Control also set some additional gravid traps in targeted habitats. A second advisory was issued to schools and childcare centers in the area and a county-wide alert was issued by radio, TV, and newspaper.

No additional cases were detected in Escambia County. The communication, cooperation, and quick response from partner agencies all contributed to putting effective control and prevention measures in place.

Section 7: Recently Published Papers and Reports, 2008

Included below are selected publications by the Florida Department of Health (FDOH) which appeared in peer reviewed journals during the calendar year of 2008. The complete title, abstract, and reference are included. The publications are ordered by last name of the first author, regardless of whether or not that author is a FDOH employee. All FDOH employees' names are highlighted in bold. Abstracts and titles are re-printed in the same format that they appeared in their respective journals.

Hepatitis B Vaccine: A Seven Year Study of Adherence to the Immunization Guidelines and Efficacy in HIV-1 Positive Adults

Vaccination against hepatitis B virus (HBV) has been recommended for all high-risk adults since 1982. Since the advent of highly active antiretroviral therapy, few studies have examined adherence to the Infectious Diseases Society of America (IDSA) and Advisory Committee on Immunization Practices (ACIP) guidelines for hepatitis B vaccination in persons infected with HIV. This was a seven-year retrospective, cross-sectional analysis of HBV vaccination practices in HIV-1-positive adults treated in an urban ambulatory care center. Compliance with screening, hepatitis B vaccination recommendations, and response to vaccination were assessed. Of the 1,601 charts reviewed, 717 persons were eligible for vaccination against hepatitis B. Of these patients, 503 received at least one dose of vaccine, but only 356 patients completed the three-dose series. Vaccine response was associated with CD4 count ($p = 0.006$) and viral load ($p = 0.001$) at the time of the first dose. However, development of hepatitis B surface antibody was seen at all CD4 counts and viral loads. The multivariate analysis showed only the HIV viral load was predictive of immunologic response. Twenty of the vaccine-eligible patients who did not receive vaccination were infected with HBV during the study period. No vaccinated persons contracted hepatitis B. Failure to implement these guidelines represents a missed opportunity to prevent disease. In our study, HIV viral load was better than CD4 count as a predictor of response to the HBV vaccination. However, neither low CD4 count nor high HIV viral load should be used as justification to delay vaccination of high-risk persons.

Bailey C, Smith V, **Sands M**. "Hepatitis B Vaccine: A Seven Year Study of Adherence to the Immunization Guidelines and Efficacy in HIV-1 Positive Adults." *IJID*, 2008, Vol. 12, No. 6, e77–e83.

Feasibility of Shortening Respiratory Isolation with a Single Sputum Nucleic Acid Amplification Test

Serial smear analysis to guide respiratory isolation (RI) of patients with suspected tuberculosis (TB), the majority of whom will be found not to have TB, leads to expensive and unnecessary isolation, and may potentially result in decreased vigilance of subjects with respiratory compromise. To compare the performance of a single first-sputum, *Mycobacterium tuberculosis*–specific nucleic acid amplification (NAA) test with three sputum smears for assessing the need for RI. Prospective evaluation of 493 patients with suspected TB (74% HIV positive) admitted to RI in a major county hospital in the United States, who had at least three sputum smears and material available from the first sample for additional NAA testing. Accuracy of the first sputum NAA result and serial smears for identifying patients with potentially infectious TB who truly require RI was determined. Forty-six patients (9.3%) had TB confirmed by culture. First-sputum NAA test detected all patients with TB who had a positive smear ($n = 35$), even when the first of the three specimens was smear negative. In addition, when compared with serial smears, the first-sputum NAA had a higher sensitivity (0.87; 95% confidence interval [CI], 0.74–0.95) and specificity (1.0) in the detection of subjects with positive *M. tuberculosis* cultures (smear sensitivity, 0.76; 95% CI, 0.61–0.87; and specificity, 0.96; 95% CI, 0.94–0.98). A single first-sputum NAA testing can

rapidly and accurately identify the subset of patients with suspected TB who require RI according to serial sputum smears. Its potential use to shorten RI time does not preclude the need to obtain subsequent specimens for culture.

Campos M, Quartin A, Mendes E, Abreu A, Gurevich S, Echarte L, Ferreira T, Cleary T, **Hollender E**, **Ashkin D**. "Feasibility of Shortening Respiratory Isolation With a Single Sputum Nucleic Acid Amplification Test." *Am J of Resp and Critical Care Med*, 2008 Vol. 178, pp. 300-305.

Outbreaks of Noroviral Gastroenteritis in Florida, 2006–2007

Noroviruses are an important cause of sporadic cases and outbreaks of acute gastroenteritis. During 2006–2007, widespread increases in acute gastroenteritis outbreaks consistent with norovirus were observed in the United States. We conducted a statewide survey to characterize norovirus outbreak activity in Florida during a 1-year period. From July 2006 to June 2007, 257 outbreaks of norovirus gastroenteritis were identified in 39 of Florida's 67 counties. About 44% of outbreaks were laboratory confirmed as norovirus and 93% of these were due to genogroup GII. About 63% of outbreaks occurred in long-term care facilities and 10% of outbreaks were classified as foodborne. The median number of ill persons per outbreak was 24, with an estimated total of 7,880 ill persons. During the study period, norovirus outbreak activity in Florida was widespread, persistent, and consistent with increased activity observed in other parts of the country.

Doyle TJ, **Stark L**, **Hammond R**, **Hopkins R**. "Outbreaks of Noroviral Gastroenteritis in Florida, 2006–2007." *Epidemiology and Infection*, 2008, published online by Cambridge University Press, doi:10.1017/S0950268808000630.

Outbreak of Giardiasis and Cryptosporidiosis Associated with a Neighborhood Interactive Water Fountain — Florida, 2006

An outbreak of giardiasis and cryptosporidiosis was identified in central Florida in September 2006. Environmental and epidemiological investigations indicated the likely source was a neighborhood interactive water fountain in a large upscale urban neighborhood. Forty nine cases meeting the case definition were identified, of which 38 were giardiasis, nine were cryptosporidiosis, and two were co-infections. The median age of cases was five years old with 32 (65.3%) cases being male. This outbreak and other similar occurrences highlight the need to design and implement more stringent disinfection practices and filtration requirements for treated interactive water venues. *Giardia* cysts and *Cryptosporidium* oocysts are small, chlorine resistant and may require supplemental disinfection methods such as ultraviolet light irradiation, ozonation, or chlorine dioxide use. Behavior modification by users of these types of venues is also necessary to prevent disease transmission. This is the first documentation of a giardiasis outbreak associated with exposure to an interactive water fountain in the United States.

Eisenstein L, **Bodager D**, **Ginzl D**. "Outbreak of Giardiasis and Cryptosporidiosis Associated with a Neighborhood Interactive Water Fountain — Florida, 2006." *Journal of Environmental Health*, 2008, Vol. 71, No. 3, pp. 18-22.

Coordinated Care Special Needs Shelter

On a national level, Hurricane Katrina highlighted gaps in services and demonstrated the need for good community practices of care for those medically at risk during disaster events. Locally, the Brevard County Health Department (BCHD) initiated a response to this need in 1992 after returning from deployment for Hurricane Andrew. Having a 72-mile-long Atlantic coastline; a county that is one-third water and mostly flood plains; more than 500,000 residents, one-fifth of whom have special needs; and a robust manufactured housing community, Brevard recognized its own vulnerability. BCHD took the lead by creating dialogues with interested community members – those with special needs and those caring for people with special needs. These discussions led to community partnerships and mutual aid agreements culminating in the Coordinated Care Special Needs Shelter (CCSNS) model practice – a virtual network of care wrapping all of the necessary goods and services of the special needs independent citizen safely around them. Victorious events of this network of care were successfully demonstrated in the 2004 hurricane season, when Brevard County expertly sheltered and safely shepherded home or to safe havens 100% of its most vulnerable citizens on three separate occasions, consecutively.

Emgushov O. "Coordinated Care Special Needs Shelter." *Public Health Reports*, 2008, Vol. 123, pp. 371-375.

Cancer Risk in People Infected with Human Immunodeficiency Virus in the United States

Data are limited regarding cancer risk in human immunodeficiency virus (HIV)-infected persons with modest immunosuppression, before the onset of acquired immunodeficiency syndrome (AIDS). For some cancers, risk may be affected by highly active antiretroviral therapy (HAART) widely available since 1996. We linked HIV/AIDS and cancer registries in Colorado, Florida and New Jersey. Standardized incidence ratios (SIRs) compared cancer risk in HIV-infected persons (initially AIDS-free) during the 5-year period after registration with the general population. Poisson regression was used to compare incidence across subgroups, adjusting for demographic factors. Among 57,350 HIV-infected persons registered during 1991-2002 (median CD4 count 491 cells/mm(3)), 871 cancers occurred during follow-up. Risk was elevated for Kaposi sarcoma (KS, SIR 1,300 [n = 173 cases]), non-Hodgkin lymphoma (NHL, 7.3 [n = 203]), cervical cancer (2.9 [n = 28]) and several non-AIDS-defining malignancies, including Hodgkin lymphoma (5.6 [n = 36]) and cancers of the lung (2.6 [n = 109]) and liver (2.7 [n = 14]). KS and NHL incidence declined over time but nonetheless remained elevated in 1996-2002. Incidence increased in 1996-2002 compared to 1991-1995 for Hodgkin lymphoma (relative risk 2.7, 95%CI 1.0-7.1) and liver cancer (relative risk infinite, one-sided 95%CI 1.1-infinity). Non-AIDS-defining cancers comprised 31.4% of cancers in 1991-1995, versus 58.0% in 1996-2002. For KS and NHL, risk was inversely related to CD4 count, but these associations attenuated after 1996. We conclude that KS and NHL incidence declined markedly in recent years, likely reflecting HAART-related improvements in immunity, while incidence of some non-AIDS-defining cancers increased. These trends have led to a shift in the spectrum of cancer among HIV-infected persons.

Engels EA, Biggar RJ, Hall HI, Cross H, Crutchfield A, Finch JL, **Grigg R**, **Hylton T**, Pawlish KS, McNeel TS, Goedert JJ. "Cancer Risk in People Infected with Human Immunodeficiency Virus in the United States." *Int J Cancer*, 2008, Vol. 123, No. 1, pp. 187-94.

Viral Resuppression and Detection of Drug Resistance Following Interruption of a Suppressive Non-nucleoside Reverse Transcriptase Inhibitor-based Regimen

Interruption of a non-nucleoside reverse transcriptase inhibitor (NNRTI)-regimen is often necessary, but must be performed with caution because NNRTIs have a low genetic barrier to resistance. Limited data exist to guide clinical practice on the best interruption strategy to use. Patients in the drug-conservation arm of the Strategies for Management of Antiretroviral Therapy (SMART) trial who interrupted a fully suppressive NNRTI-regimen were evaluated. From 2003, SMART recommended interruption of an

NNRTI by a staggered interruption, in which the NNRTI was stopped before the NRTIs, or by replacing the NNRTI with another drug before interruption. Simultaneous interruption of all antiretrovirals was discouraged. Resuppression rates 4-8 months after reinitiating NNRTI-therapy were assessed, as was the detection of drug-resistance mutations within 2 months of the treatment interruption in a subset (n = 141). Overall, 601/688 (87.4%) patients who restarted an NNRTI achieved viral resuppression. The adjusted odds ratio (95% confidence interval) for achieving resuppression was 1.94 (1.02-3.69) for patients with a staggered interruption and 3.64 (1.37-9.64) for those with a switched interruption compared with patients with a simultaneous interruption. At least one NNRTI-mutation was detected in the virus of 16.4% patients with simultaneous interruption, 12.5% patients with staggered interruption and 4.2% patients with switched interruption. Fewer patients with detectable mutations (i.e. 69.2%) achieved HIV-RNA of 400 copies/ml or less compared with those in whom no mutations were detected (i.e. 86.7%; P = 0.05). In patients who interrupt a suppressive NNRTI-regimen, the choice of interruption strategy may influence resuppression rates when restarting a similar regimen. NNRTI drug-resistance mutations were observed in a relatively high proportion of patients. These data provide additional support for a staggered or switched interruption strategy for NNRTI drugs.

Fox Z, Phillips A, Cohen C et al and the SMART Study Group including **Sands M**. "Viral Resuppression and Detection of Drug Resistance Following Interruption of a Suppressive Non-nucleoside Reverse Transcriptase Inhibitor-based Regimen." *AIDS*, 2008, Vol. 22, pp. 2279-2289.

Ciguatera Fish Poisoning: Treatment, Prevention and Management

Ciguatera Fish Poisoning (CFP) is the most frequently reported seafood-toxin illness in the world, and it causes substantial physical and functional impact. It produces a myriad of gastrointestinal, neurologic and/or cardiovascular symptoms which last days to weeks, or even months. Although there are reports of symptom amelioration with some interventions (e.g. IV mannitol), the appropriate treatment for CFP remains unclear to many physicians. We review the literature on the treatments for CFP, including randomized controlled studies and anecdotal reports. The article is intended to clarify treatment options, and provide information about management and prevention of CFP, for emergency room physicians, poison control information providers, other health care providers, and patients.

Friedman MA, Fleming LE, Fernandez M, Bienfang P, Schrank K, Dickey R, Bottein M-Y, Backer L, Ayyar R, Weisman R, **Watkins SM**, Granade R, **Reich A**. "Ciguatera Fish Poisoning: Treatment, Prevention and Management." *Marine Drugs*, 2008, Vol. 6, pp. 456-479.

Tracking Childhood Exposure to Lead and Developmental Disabilities: Examining the Relationship in a Population-Based Sample

Elevated levels of lead detected in the blood are associated with harmful effects on children's learning and behavior. The goal of the current Environmental Public Health Tracking Project was to examine the relationship between selected developmental disabilities and childhood blood lead levels in a population-based sample. Using extant datasets from the Florida Department of Health, Childhood Lead Poisoning Prevention Program, and the Florida Department of Education, we were able to isolate a linked dataset of children who were tested for lead poisoning and attended public schools. Special education categories served as a proxy for developmental disabilities; the prevalence of these disabilities in the sample of children with blood lead levels was compared with that in children who attended the same schools but were not tested for lead poisoning. Results indicated that children screened for lead poisoning were more likely to be receiving services for behavior problems, mental retardation, learning disabilities, or a speech-language impairment than other children attending the same schools. Implications for using administrative datasets to examine this relationship are discussed.

Kaiser MY, **Kearney G**, Scott KG, **DuClos C**, **Kurlfink J**. "Tracking Childhood Exposure to Lead and Developmental Disabilities: Examining the Relationship in a Population-Based Sample." *J Public Health Management Practice*, 2008, Vol. 16, No. 6, pp. 577-580.

Mercury Levels and Fish Consumption Practices in Women of Child-bearing Age in the Florida Panhandle

The southeastern United States, and in particular the coastal areas along the Gulf of Mexico (Gulf Coast) in Florida, experiences some of the highest levels of mercury deposition in the country. Although the State of Florida's coastal border is among the longest in the United States, and the State has issued fish consumption advisories due to mercury on multiple fish species, few data have been systematically collected to assess mercury levels in the human population of the state or to assess the efficacy of the consumption advisories. Because of the generally high rate of seafood consumption among coastal populations, the human population in the Florida Panhandle, near Pensacola, FL is potentially exposed to elevated levels of mercury. In the present study, we analyzed hair mercury levels in women of childbearing age (16-49 years) who had resided near Pensacola, FL for at least 1 year. We also surveyed the fish consumption practices of the cohort and evaluated awareness of the Florida Fish Consumption Advisory. Hair mercury levels were significantly higher in women who consumed fish within the 30 days prior to sampling ($p<0.05$) and in those women who were unaware of the consumption advisory ($p<0.05$). Only 31% of the women reported knowledge of the consumption advisory and pregnant women exhibited lower awareness of the advisory than non-pregnant women. The data suggest that public health interventions such as education and fish advisories have not reached the majority of women in the counties surrounding Pensacola who are most at risk from consumption of fish with high levels of mercury.

Karouna-Renier NK, Rao KR, **Lanza JJ, Rivers SD**, Wilson PA, Hodges DK, Levine KE, Ross GT. "Mercury Levels and Fish Consumption Practices in Women of Child-bearing Age in the Florida Panhandle." *Environmental Research*, Vol. 108, No. 3, 2008, pp. 320-326.

A Procedure for Detecting Childhood Cancer Clusters Near Hazardous Waste Sites in Florida

Despite over 20 years of research on childhood cancer clusters and hazardous waste sites, little evidence has been produced to indicate a causal relationship. Nevertheless, the perception of a childhood cancer cluster being located near a hazardous waste site can raise fear and uncertainty, and it demands attention from health officials. To investigate this public health concern, the author used the spatial-scan statistical software SaTScan to detect childhood cancer clusters and their proximity to National Priority List (NPL), or Superfund, sites in Florida. In the ecological study reported here, "most likely" clusters were defined as those with a p-value of <.05. Distance served as a proxy for exposure; a geographical information system (GIS) was used to determine the number of clusters within a predetermined distance of an NPL site. Spatial clusters were found to occur randomly throughout the state, with most clusters being identified in the more populated counties, and clusters less likely to occur near an NPL site. This article attempts to explain the utility of an emerging public health surveillance tool for detecting cancer clusters near hazardous waste sites. Despite several epidemiological limitations of the study, as well as the fact that there are other environmental exposure hazards such as Toxic Release Inventory facilities and landfills, the SaTScan program proved useful as a surveillance tool for generating more in-depth studies.

Kearney G. "A Procedure for Detecting Childhood Cancer Clusters Near Hazardous Waste Sites in Florida." *Journal of Environmental Health*, 2008, Vol. 70, No. 9, pp. 29-34.

Potential Effects of Electronic Laboratory Reporting on Improving Timeliness of Infectious Disease Notification — Florida, 2002-2006

Electronic laboratory reporting (ELR) potentially can improve the timeliness of notifiable disease case reporting and subsequent disease control activities, but the extent of this improvement and the resulting effects on the workload of state or local surveillance teams are unknown. To estimate those effects, investigators from the Florida Department of Health (FDOH) evaluated the timeliness of reporting for four notifiable diseases of varying incubation periods: salmonellosis, shigellosis, meningococcal disease, and hepatitis A. Investigators then calculated the potential improvement expected with ELR using the assumption that ELR can reduce to 1 day the time from completion of a diagnostic laboratory test to notification of the county health department (CHD) of the result. This report summarizes the results of that analysis, which showed that ELR would reduce the total time from symptom onset to CHD notification of a case by nearly half for salmonellosis (from 12 days to 7 days) and shigellosis (from 10 days to 6 days), but would produce no change for meningococcal disease (4 days) and minimal improvement for hepatitis A (from 13 days to 10 days). In Florida, the benefits of ELR for reporting timeliness likely will vary by disease.

Kite-Powell A, **Hamilton JJ**, **Hopkins RS**, **DePasquale JM**. "Potential Effects of Electronic Laboratory Reporting on Improving Timeliness of Infectious Disease Notification — Florida, 2002-2006." *MMWR*, 2008, Vol. 57, No. 49, pp. 1325-1328.

Florida Red Tide and Human Health: A Pilot Beach Conditions Reporting System to Minimize Human Exposure

With over 50% of the US population living in coastal counties, the ocean and coastal environments have substantial impacts on coastal communities. While many of the impacts are positive, such as tourism and recreation opportunities, there are also negative impacts, such as exposure to harmful algal blooms (HABs) and water borne pathogens. Recent advances in environmental monitoring and weather prediction may allow us to forecast these potential adverse effects and thus mitigate the negative impact from coastal environmental threats. One example of the need to mitigate adverse environmental impacts occurs on Florida's west coast, which experiences annual blooms, or periods of exuberant growth, of the toxic dinoflagellate, *Karenia brevis*. *K. brevis* produces a suite of potent neurotoxins called brevetoxins. Wind and wave action can break up the cells, releasing toxin that can then become part of the marine aerosol or sea spray. Brevetoxins in the aerosol cause respiratory irritation in people who inhale it. In addition, asthmatics who inhale the toxins report increased upper and lower airway symptoms and experience measurable changes in pulmonary function. Real-time reporting of the presence or absence of these toxic aerosols will allow asthmatics and local coastal residents to make informed decisions about their personal exposures, thus adding to their quality of life. A system to protect public health that combines information collected by an Integrated Ocean Observing System (IOOS) has been designed and implemented in Sarasota and Manatee Counties, Florida. This system is based on real-time reports from lifeguards at the eight public beaches. The lifeguards provide periodic subjective reports of the amount of dead fish on the beach, apparent level of respiratory irritation among beach-goers, water color, wind direction, surf condition, and the beach warning flag they are flying. A key component in the design of the observing system was an easy reporting pathway for the lifeguards to minimize the amount of time away from their primary duties. Specifically, we provided a Personal Digital Assistant for each of the eight beaches. The portable unit allows the lifeguards to report from their guard tower. The data are transferred via wireless Internet to a website hosted on the Mote Marine Laboratory Sarasota Operations of the Coastal Ocean Observation Laboratories (SO COOL) server. The system has proven to be robust and well received by the public. The system has reported variability from beach to beach and has provided vital information to users to minimize their exposure to toxic marine aerosols.

Kirkpatrick B, Currier R, Nierenberg K, **Reich A**, Backer LC, Stumpf R, Fleming L, Kirkpatrick G. "Florida Red Tide and Human Health: A Pilot Beach Conditions Reporting System to Minimize Human Exposure." *Science of the Total Environment*, 2008, Vol. 402, No. 1, pp. 1-8.

Cryptosporidiosis Outbreak in a Nassau County, Florida, Return Travel Group from Ireland, May 24, 2006-June 4, 2006

The Nassau County Health Department (NCHD) in Florida investigated an outbreak of gastrointestinal (GI) illness in a returning choral group who toured Ireland from May 24 to June 4, 2006. The travel group, consisting predominantly of retirees, had performed at several churches and at a dinner theater in Ireland. The NCHD administered a telephone questionnaire to 40 of the 41 group members to examine possible water exposures; common meals; and food, travel, and clinical histories. The results of the questionnaire showed that 29 people met the case definition for the outbreak. Five stool samples from travel group members tested positive for *Cryptosporidium parvum*, a species that is animal in origin and often spread through an environmental contamination with animal feces. All five positive samples were subtyped 11aA16G1R1b, a strain that scientists at the Centers for Disease Control and Prevention (CDC) Division of Parasitic Diseases detected twice in 2006 in other human specimens from Northern Ireland.

Lazensky R, **Hammond RM**, **Van Zile K**, **Geib K**. "Cryptosporidiosis Outbreak in a Nassau County, Florida, Return Travel Group from Ireland, May 24, 2006-June 4, 2006." *J Environ Health*, 2008, Vol. 71, No. 2, pp. 20-4.

Gender and Race Specific Comparison of Tobacco-Associated Cancer Incidence Trends in Florida with SEER Regional Cancer Incidence Data

Analysis of state and national tobacco-associated cancer trends is critical for the identification of high-risk regions of the country that require the attention of the public health community. This study compares Florida race- and gender-specific cancer trends with pooled data obtained from nine Surveillance, Epidemiology, and End Results (SEER-9) registries. Age-adjusted, race- and gender-specific cancer incidence trends were evaluated using joinpoint regression analysis. Pooled, age-adjusted incidence rates and standardized incidence rate ratios were computed for each cancer for the years 1999-2003 to compare Florida to SEER-9. Relative to SEER-9 whites and irrespective of gender, lung cancer rates in white Floridians were elevated through the 1990s. However, lung cancer rates have recently declined at a steeper rate among white Floridians than among SEER-9 whites. For years 1999–2003, black Floridians had significantly lower rates of lung, bladder, pancreas, and kidney cancer relative to SEER-9 blacks. The opposite pattern was evident for white Floridians with significantly higher rates of lung and laryngeal cancer relative to SEER-9 whites. Progress in the reduction of tobacco-associated cancers among white Floridians lags behind the progress noted in SEER-9 registries suggesting that additional state-directed smoking prevention and smoking cessation measures are needed.

Lee DJ, Voti L, MacKinnon J, Koniaris LG, Fleming LE, **Huang Y**, Wohler B, Franceschi D, Dietz NA, Sherman R, Soler-Vilá H. "Gender and Race Specific Comparison of Tobacco-Associated Cancer Incidence Trends in Florida with SEER Regional Cancer Incidence Data." *Cancer Causes and Control*, 2008, Vol. 19, No. 7, pp. 711-23.

Men Who Have Sex with Men: Racial/Ethnic Disparities in Estimated HIV/AIDS Prevalence at the State and County Level, Florida

Population-based HIV/AIDS prevalence estimates among men who have sex with men (MSM) have been unavailable, but have implications for effective prevention efforts. Prevalent (living) Florida HIV/AIDS cases reported through 2006 (numerators) were stratified by race/ethnicity and HIV exposure category. Based on previous research, MSM populations were posited as 4-10% of all males aged >13 years in each subgroup (denominators). At the estimated lower and upper plausible bounds, respectively, HIV/AIDS prevalence per 100,000 MSM was significantly higher among black (8,292.6-20,731.4); Hispanic (5,599.5-13,998.7); and Asian/Pacific Islander, American Indian or multi-racial (4,942.6-12,356.8) MSM than among white MSM (3,444.9-8,612.3). HIV/AIDS prevalence among all MSM was 13.8-36.9 times that among all other males. Across 19 high-morbidity counties, MSM HIV/AIDS prevalence was highest among those in the most populous counties and highest among blacks. This methodology, adaptable by other states, facilitates calculation of plausible MSM HIV/AIDS prevalence to guide HIV prevention/care community planners and MSM.

Lieb S, **Arons P**, **Thompson DR**, **Santana AM**, **Liberti TM**, **Maddox L**, **Bush T**, Fallon SJ. "Men Who Have Sex with Men: Racial/Ethnic Disparities in Estimated HIV/AIDS Prevalence at the State and County Level, Florida." *AIDS and Behav*., 2008 [Epub ahead of print], DOI 10.1007/s10461-008-9411-3.

Primary Amebic Meningoencephalitis — Arizona, Florida, and Texas, 2007

Primary amebic meningoencephalitis (PAM) is a rare but nearly always fatal disease caused by infection with *Naegleria fowleri*, a thermophilic, free-living ameba found in freshwater environments. Infection results from water containing *N. fowleri* entering the nose, followed by migration of the amebae to the brain via the olfactory nerve. In 2007, six cases of PAM in the United States were reported to CDC; all six patients died. This report summarizes the investigations of the cases, which occurred in three southern tier states (Arizona, Florida, and Texas) during June-September and presents preliminary results from a review of PAM cases during 1937-2007. Because deaths from PAM often prompt heightened concern about the disease among the public, an updated and consistent approach to *N. fowleri* risk reduction messages, diagnosis and treatment, case reporting, and environmental sampling is needed.

Matthews S, **Ginzl D**, **Walsh D**, **Sherin K**, **Middaugh J**, **Hammond R**, **Bodager D**, et al. "Primary Amebic Meningoencephalitis — Arizona, Florida, and Texas, 2007". *MMWR*, 2008, Vol. 57, No. 21, pp. 573-577.

Florida Bladder Cancer Trends 1981-2004: Minimal Progress in the Reduction of Advanced Disease

While bladder cancer (BC) is the 4th most common cancer in males in the U.S. there are no accepted screening recommendations for this disease despite the fact that the greatest risk factors for BC are identifiable and modifiable (i.e., tobacco exposure). Survival from BC is highly correlated with stage of disease. We sought to ascertain if there have been any changes in the stage at presentation of BC in Florida over the last 25 years. The Florida Cancer Data Registry was evaluated for all BC cases between 1981 and 2004. Cases were coded and analyzed as local, in-situ or advanced (regional and distant) disease. Cases were stratified by demographic groups. The overall incidence of BC declined slightly over the last 25 years from 24.3 to 20.5 cases per 100,000. Overall, non-Hispanic White males have a nearly three-fold incidence of BC compared to Black males, while Hispanic males have approximately a two-fold higher incidence compared to Black males. Non-Hispanic White females have nearly a twofold increased incidence compared to both Black and Hispanic females. Advanced stage BC decreased minimally over 25 years; White and Black females had the smallest decline in annual percentage changes of advanced BC. Despite knowledge of the main risk factors for BC, there have been only small decreases in the percentage of patients presenting with advanced cases in Florida over the last 25 years. BC may thus be an appropriate cancer for increased public awareness campaigns and potentially targeted screening of high-risk populations.

Nieder AM, MacKinnon JA, **Huang Y**, Fleming LE, Koniaris LG, Lee DJ. "Florida Bladder Cancer Trends 1981-2004: Minimal Progress in the Reduction of Advanced Disease." *J Urol*, 2008, Vol. 179, No. 2, pp. 491-5.

Public Health Consequences of a False-Positive Laboratory Test Result for *Brucella* — Florida, Georgia, and Michigan, 2005

Human brucellosis, a nationally notifiable disease, is uncommon in the United States. Most human cases have occurred in returned travelers or immigrants from regions where brucellosis is endemic, or were acquired domestically from eating illegally imported, unpasteurized fresh cheeses. In January 2005, a woman aged 35 years who lived in Nassau County, Florida, received a diagnosis of brucellosis, based on results of a *Brucella* immunoglobulin M (IgM) enzyme immunoassay (EIA) performed in a commercial laboratory using analyte specific reagents (ASRs); this diagnosis prompted an investigation of dairy products in two other states. Subsequent confirmatory antibody testing by *Brucella* microagglutination test (BMAT) performed at CDC on the patient's serum was negative. The case did not meet the CDC/Council of State and Territorial Epidemiologists' (CSTE) definition for a probable or confirmed brucellosis case, and the initial EIA result was determined to be a false positive. This report summarizes the case history, laboratory findings, and public health investigations. CDC recommends that *Brucella* serology testing only be performed using tests cleared or approved by the Food and Drug Administration (FDA) or validated under the Clinical Laboratory Improvement Amendments (CLIA) and shown to reliably detect the presence of *Brucella* infection. Results from these tests should be considered supportive evidence for recent infection only and interpreted in the context of a clinically compatible illness and exposure history. EIA is not considered a confirmatory *Brucella* antibody test; positive screening test results should be confirmed by *Brucella*-specific agglutination (i.e., BMAT or standard tube agglutination test) methods.

Pragle A, **Blackmore C**, Clark TA, Ari MD, Wilkins PP, Gross D, Stern EJ. "Public Health Consequences of a False-Positive Laboratory Test Result for *Brucella* — Florida, Georgia, and Michigan, 2005." *MMWR*, 2008, Vol. 57, No. 22, pp. 603-5.

Mortality Surveillance: 2004 to 2005 Florida Hurricane-Related Deaths

During 2004 and 2005, Florida was struck by eight hurricanes, resulting in 213 deaths. The Department of Health and Florida medical examiners monitor hurricane mortality surveillance. This study analyzed hurricane-related deaths reported by the Florida Medical Examiners Commission (MEC) for 2004 to 2005. The objectives of this study were to 1) describe the Florida hurricane-related mortality for 2004 and 2005 2) accurately characterize the hurricane-related deaths and 3) identify strategies to prevent or reduce future hurricane deaths. For 2004, there were 144 total hurricane-related deaths. The majority (59%) occurred in the post-impact phase, with accidents accounting for 76% of deaths. Among these, over half were caused by trauma, followed by drowning, other injury, electrocution, and carbon monoxide poisoning. For 2005, there were 69 hurricane-related deaths. Sixty-one percent of deaths occurred in the post-impact phase, with accidents accounting for 86% of all deaths. Among these, over half were due to trauma, with drowning and carbon monoxide poisoning being the other major contributors. Most hurricane-related deaths are due to unintentional injury and therefore, preventable. Seventy-nine percent of deaths are in those aged 40 and older. Prevention messages should target high-risk, post-impact activities, especially in older adults.

Ragan P, **Schulte J**, Nelson S, Jones K. “Mortality Surveillance: 2004 to 2005 Florida Hurricane-Related Deaths.” *American Journal of Forensic Medicine & Pathology*, 2008, Vol. 29, No. 2, pp. 148-53.

Florida Epidemic Intelligence Service (FL-EIS) Program: The First Five Years, 2001-2006

The Florida Epidemic Intelligence Service Program was created in 2001 to increase epidemiologic capacity within the state. Patterned after applied epidemiology training programs such as the Centers for Disease Control and Prevention Epidemic Intelligence Service and the California Epidemiologic Investigation Service, the two year post-graduate program is designed to train public leaders of the future. The long term goal is to increase the capacity of the Florida Department of Health to respond to new challenges in disease control and prevention. Placement is with experienced epidemiologists in county health departments/consortia. Fellows participate in didactic and experiential components, and complete core activities for learning as evidence of competency. As evidenced by graduate employment, the program is successfully meeting its goal. As of 2006, three classes (N=18) have graduated. Among graduates, 83% are employed as epidemiologists, 67% in Florida. Training in local health departments and an emphasis on graduate retention may assist states in strengthening their epidemiologic capacity.

Ragan P, **Rowan A**, **Schulte J**, **Weirsma S**. “Florida Epidemic Intelligence Service (FL-EIS) Program: The First Five Years, 2001-2006.” *Public Health Reports*, 2008, Vol. 123, Supplement 1, pp. 21-27.

Illness Associated with Red Tide — Nassau County, Florida, 2007

A “red tide” is a harmful algal bloom that occurs when toxic, microscopic algae in seawater proliferate to a higher-than-normal concentration (i.e., bloom), often discoloring the water red, brown, green, or yellow. Red tides can kill fish, birds, and marine mammals and cause illness in humans. Florida red tide is caused by the dinoflagellate *Karenia brevis*, which produces toxins called brevetoxins and is most commonly found in the Gulf of Mexico; however, *K. brevis* blooms also can occur along the Atlantic coast. On September 25, 2007, a cluster of respiratory illnesses was reported to the Nassau County Health Department (NCHD) in northeastern Florida. All of the ill persons were employed at a beach restoration worksite by a dredging company operating at Fernandina Beach; they reported symptoms of eye or respiratory irritation (e.g., coughing, sneezing, sniffling, and throat irritation). NCHD and the Florida Department of Health promptly conducted epidemiologic and environmental investigations and determined the illnesses likely were associated with exposure to a red tide along the Atlantic coast. These actions highlight the importance of rapid investigation of health concerns with potential environmental causes to enable timely notification of the public and prevent further illness.

Reich A, **Blackmore C**, **Hopkins R**, **Lazensky R**, **Geib K**, **Ngo-Seidel E**. “Illness Associated with Red Tide — Nassau County, Florida, 2007.” *MMWR*, 2008, Vol. 57, No. 26, pp. 717-720.

Fatal Necrotizing Pneumonia Due to a Panton-Valentine Leukocidin Positive Community-associated Methicillin-sensitive *Staphylococcus aureus* and Influenza Co-infection: A Case Report

Recent studies have described a number of fatalities due to methicillin-resistant *Staphylococcus aureus* (MRSA) and influenza virus co-infection. MRSA isolates provide a challenge to caregivers due to inherent wide range antibiotic resistance. Many facilities have instituted screening methods, based on the presence of antibiotic resistance genes, to identify MRSA positive patients upon admission. However, the resistance profile of the pathogen does not necessarily determine the severity of disease caused by that organism. We describe a fatal case of necrotizing pneumonia in a patient co-infected with Influenza B and a community-associated, PVL-positive methicillin-susceptible *Staphylococcus aureus* (MSSA).

Roberts JC, Gulino SP, Peak KK, Luna VA, **Sanderson R**. "Fatal Necrotizing Pneumonia Due to a Panton-Valentine Leukocidin Positive Community-associated Methicillin-sensitive *Staphylococcus aureus* and Influenza Co-infection: A Case Report." *Ann Clin Microbiol Antimicrob*, 2008, Vol. 7, No. 5.

Major Clinical Outcomes in Antiretroviral Therapy (ART)-naïve Participants and in Those not Receiving ART at Baseline in the SMART Study

The SMART study randomized 5472 human immunodeficiency virus (HIV)–infected patients with CD4+ cell counts >350 cells/μL to intermittent antiretroviral therapy (ART; the drug conservation [DC] group) versus continuous ART (the viral supression [VS] group). In the DC group, participants started ART when the CD4+ cell count was <250 cells/μL. Clinical outcomes in participants not receiving ART at entry inform the early use of ART. Patients who were either ART naive (n=249) or who had not been receiving ART for ⩾6 months (n=228) were analyzed. The following clinical outcomes were assessed: (i) opportunistic disease (OD) or death from any cause (OD/death); (ii) OD (fatal or nonfatal); (iii) serious non-AIDS events (cardiovascular, renal, and hepatic disease plus non–AIDS-defining cancers) and non-OD deaths; and (iv) the composite of outcomes (ii) and (iii). A total of 477 participants (228 in the DC group and 249 in the VS group) were followed (mean, 18 months). For outcome (iv), 21 and 6 events occurred in the DC (7 in ART-naïve participants and 14 in those who had not received ART for ⩾ 6 months) and VS (2 in ART-naïve participants and 4 in those who had not received ART for ⩾6 months) groups, respectively. Hazard ratios for DC vs. VS by outcome category were as follows: outcome (i), 3.47 (95% confidence interval [CI], 1.26–9.56; P=0.2); outcome (ii), 3.26 (95% CI, 1.04–10.25; P=0.4); outcome (iii), 7.02 (95% CI, 1.57–31.38; P=0.1); and outcome (iv), 4.19 (95% CI, 1.69–10.39; P=0.002). Initiation of ART at CD4+ cell counts >350 cells/μL compared with <250 cells/μL may reduce both OD and serious non-AIDS events. These findings require validation in a large, randomized clinical trial.

The Strategies for Management of Antiretroviral Therapy (SMART) Study Group, including **Sands M**. "Major Clinical Outcomes in Antiretroviral Therapy (ART)-naïve Participants and in Those Not Receiving ART at Baseline in the SMART Study." *JID*, 2008, Vol. 197, pp. 1133-44.

Inferior Clinical Outcomes of the CD4 Cell Count-guided Antiretroviral Treatment Interruption Strategy in the SMART Study: Role of CD4 Cell Counts and HIV RNA Levels During Follow-up

The SMART study compared 2 strategies for using antiretroviral therapy—drug conservation (DC) and viral suppression (VS)—in 5472 human immunodeficiency virus (HIV)–infected patients with CD4+ cell counts >350 cells/μL. Rates and predictors of opportunistic disease or death (OD/death) and the relative risk (RR) in DC versus VS groups according to the latest CD4+ cell count and HIV RNA level are reported. During a mean of 16 months of follow-up, DC patients spent more time with a latest CD4+ cell count <350 cells/μL (for DC vs. VS, 31% vs. 8%) and with a latest HIV RNA level >400 copies/mL (71% vs. 28%) and had a higher rate of OD/death (3.4 vs. 1.3/100 person-years) than VS patients. For periods of follow-up with a CD4+ cell count <350 cells/μL, rates of OD/death were increased but similar in the 2 groups (5.7 vs. 4.6/100 person-years), whereas the rates were higher in DC versus VS patients (2.3 vs. 1.0/100 person-years; RR, 2.3 [95% confidence interval, 1.5–3.4]) for periods with the latest CD4+ cell count ⩾350 cells/μL—an increase explained by the higher HIV RNA levels in the DC group. The higher risk of OD/death in DC patients was associated with (1) spending more follow-up time with relative immunodeficiency and (2) living longer with uncontrolled HIV replication even at higher CD4+ cell counts. Ongoing HIV replication at a given CD4+ cell count places patients at an excess risk of OD/death.

The Strategies for Management of Antiretroviral Therapy (SMART) Study Group, including **Sands M**. "Inferior Clinical Outcomes of the CD4 Cell Count-guided Antiretroviral Treatment Interruption Strategy in the SMART Study: Role of CD4 Cell Counts and HIV RNA Levels During Follow-up." *JID*, 2008, Vol. 197, pp. 1145-55.

Maternal Obesity and Risk of Infant Death Based on Florida Birth Records for 2004

The purpose of this study was to assess the relationship between pre-pregnancy maternal obesity and risk of infant death. In March 2004, maternal height and pre-pregnancy weight were added to the data collected on the Florida birth certificate. Using birth records linked to infant deaths, these data were used to assess the relationship between pre-pregnancy maternal obesity, as measured by body mass index, and infant death. Pre-pregnancy maternal obesity was associated with increased odds of infant death. The increased risk was found with and without adjustments for maternal race, marital status, age, education, trimester prenatal care began, first birth, and tobacco use. There is a substantial and significant association between pre-pregnancy maternal obesity and infant death.

Thompson DR, **Clark CL**, **Wood B**, Zeni MB. "Maternal Obesity and Risk of Infant Death Based on Florida Birth Records for 2004." *Public Health Reports*, 2008, Vol. 123, pp. 487-493.

An Intervention to Improve Notifiable Disease Reporting Using Ambulatory Clinics

Strong notifiable disease surveillance systems are essential for disease control. We sought to determine if a brief informational session between clinic and health department employees followed by reminder faxes and a newsletter would improve reporting rates and timeliness in a notifiable disease surveillance system. Ambulatory clinics were randomized to an intervention group which received the informational session, a faxed reporting reminder and newsletter, or to a control group. Among intervention and control clinics, there were improvements in the number of cases reported and the timeliness of reporting. However, there were no statistically significant changes in either group. Despite improved communication between the health department and clinics, this intervention did not significantly improve the level or the timeliness of reporting. Other types of interventions should be considered to improve reporting such as simplifying the reporting process.

Trepka MJ, **Zhang G**, **Leguen F**. "An Intervention to Improve Notifiable Disease Reporting Using Ambulatory Clinics." *Epidemiol. Infect*., 2008, Vol. 137, pp. 22-29.

Neurotoxic Shellfish Poisoning

Neurotoxic shellfish poisoning (NSP) is caused by consumption of molluscan shellfish contaminated with brevetoxins primarily produced by the dinoflagellate, *Karenia brevis*. Blooms of *K. brevis*, called Florida red tide, occur frequently along the Gulf of Mexico. Many shellfish beds in the US (and other nations) are routinely monitored for presence of *K. brevis* and other brevetoxin-producing organisms. As a result, few NSP cases are reported annually from the US. However, infrequent larger outbreaks do occur. Cases are usually associated with recreationally-harvested shellfish collected during or post red tide blooms. Brevetoxins are neurotoxins which activate voltage-sensitive sodium channels causing sodium influx and nerve membrane depolarization. No fatalities have been reported, but hospitalizations occur. NSP involves a cluster of gastrointestinal and neurological symptoms: nausea and vomiting, paresthesias of the mouth, lips and tongue as well as distal paresthesias, ataxia, slurred speech and dizziness. Neurological symptoms can progress to partial paralysis; respiratory distress has been recorded. Recent research has implicated new species of harmful algal bloom organisms which produce brevetoxins, identified additional marine species which accumulate brevetoxins, and has provided additional information on the toxicity and analysis of brevetoxins. A review of the known epidemiology and recommendations for improved NSP prevention are presented.

Watkins SM, **Reich A**, Fleming LE, **Hammond R**. "Neurotoxic Shellfish Poisoning." *Marine Drugs*, 2008, Vol. 6, pp. 430-455.

Burden of Cervical Cancer in the United States, 1998-2003

Recent interest in human papillomavirus (HPV)-associated cancers and the availability of several years of data covering 83% of the US population prompted this descriptive assessment of cervical cancer incidence and mortality in the US during the years 1998 through 2003. This article provides a baseline for monitoring the impact of the HPV vaccine on the burden of cervical cancer over time. Data from 2 federal cancer surveillance programs, the Centers for Disease Control and Prevention (CDC)'s National Program of Cancer Registries and the National Cancer Institiute's Surveillance, Epidemiology, and End Results Program, were used to examine cervical cancer incidence by race, Hispanic ethnicity, histology, stage, and US census region. Data from the CDC's National Center for Health Statistics were used to examine cervical cancer mortality by race, Hispanic ethnicity, and US census region. The incidence rate of invasive cervical cancer was 8.9 per 100,000 women during 1998 through 2003. Greater than 70% of all cervical carcinomas were squamous cell type, and nearly 20% were adenocarcinomas. Cervical carcinoma incidence rates were increased for black women compared with white women and for Hispanic women compared with non-Hispanic women. Hispanic women had increased rates of adenocarcinomas compared with non-Hispanic women. The South had increased incidence and mortality rates compared with the Northeast. Disparities by race/ethnicity and region persist in the burden of cervical cancer in the US. Comprehensive screening and vaccination programs, as well as improved surveillance, will be essential if this burden is to be reduced in the future.

Watson M, Saraiya M, Benard V, Coughlin S, Flowers L, Cokkinides V, Schwenn M, **Huang Y**, Giuliano A. "Burden of Cervical Cancer in the United States, 1998-2003." *Cancer* (Supplement), 2008, Vol. 113, No. 10, pp. 2588-64.

Assessing the Association Between Environmental Impacts and Health Outcomes: A Case Study From Florida

The Centers for Disease Control and Prevention (CDC) created the Environmental Public Health Tracking (EPHT) program to integrate hazard monitoring, exposure, and health effects surveillance into a cohesive tracking network. Part of Florida's effort to move toward implementation of EPHT is to develop models of the spatial and temporal association between myocardial infarctions (MIs) and ambient ozone levels in Florida. Existing data were obtained from Florida's Agency for Health Care Administration, Florida's Department of Environmental Protection, the U.S. Census Bureau, and CDC's Behavioral Risk Factor Surveillance System. These data were linked by both ignoring spatial support and using block kriging, a support-adjusted approach. The MI data were indirectly standardized by age, race/ethnicity, and sex. The state of Florida was used as the comparison standard to compute the MI standardized event ratio (SER) for each county and each month. After the data were linked, global models were used initially to relate MIs to ambient ozone levels, adjusting for covariates. The global models provide an estimated relative MI SER for the state. Realizing that the association in MIs and ozone might change across locations, local models were used to estimate the relative MI SER for each county, again adjusting for covariates. Results differed, depending on whether the spatial support was ignored or accounted for in the models. The opportunities and challenges associated with EPHT analyses are discussed and future directions highlighted.

Young LJ, Gotway CA, Yang J, **Kearney G**, **DuClos C**. “Assessing the Association Between Environmental Impacts and Health Outcomes: A Case Study From Florida.” *Statist. Med.*, 2008, Vol. 27, pp. 3998-4015.

Additional reports and articles regarding infectious disease incidence, disease surveillance activities, reportable disease notifications, and heath studies conducted in Florida can be accessed in *Epi Update*. *Epi Update* is a publication of the Bureau of Epidemiology and compiles information related to Department of Health activities from around the State. The current issue, as well as archived issues, of *Epi Update* can be accessed at http://www.doh.state.fl.us/disease_ctrl/epi/Epi_Updates/index.html.

Section 8: Summary of Cancer Data, 2006

Cancer incidence data are collected, verified, and maintained by the Florida Cancer Data System (FCDS), Florida's statewide cancer registry. The FCDS is administered by the Florida Department of Health, Bureau of Epidemiology and operated by the Sylvester Comprehensive Cancer Center at the University of Miami, Leonard M. Miller School of Medicine.

The FCDS began operation with a pilot project for cancer registration in 1980 and commenced statewide collection of cancer incidence data from all Florida hospitals in 1981. The FCDS now collects incidence data from hospitals, freestanding ambulatory surgical centers, radiation therapy facilities, pathology laboratories, and dermatopathologists' offices. Each facility, laboratory, and practitioner is required to report the FCDS within six months of each diagnosis and within six months of the date of each treatment. Consequently, there is an inherent time lag in the release of cancer registry data for surveillance activities. Currently, data is available through 2006.

During 2006, physicians diagnosed 100,303 primary cancers among Floridians, an average of 275 cases per day. Cancer occurs predominantly among older people as age is the top risk factor. Approximately 60% of the newly diagnosed cancers in 2006 occurred in persons age 65 and older; this age group accounts for 18% of Florida's population. The four most common cancers in Floridians were lung and bronchus (16,154 cases), prostate (14,043 cases), female breast (12,826 cases), and colorectal (10,173 cases), which accounted for 57% of all new cases in blacks, and 53% in whites. Fifty-three percent of new cancers were diagnosed in males. The number of new cancer cases in Florida's five most populous counties (Broward, Miami-Dade, Hillsborough, Orange, and Palm Beach) which had 42% of Florida's population accounted for 39% of the new cancer cases in Florida in 2006.

Over the 26-year period from 1981 to 2006, males had a higher incidence (age-adjusted incidence rate) than females. Among blacks, the incidence among males was between 55% and 102% higher than that among females. Among whites, the incidence among males was between 28% and 53% higher than that among females. White females had higher age-adjusted incidence rates than black females in all 26 years. The racial disparity varied between 10% and 27%. Black males had higher age-adjusted incidence rates than white males in all years, except in 1987, 1988, and 2006. The racial disparity between black and white males increased from 1989 until 1995; however, it has steadily declined since 1996.

More information about the burden of cancer in Florida is provided in the *Florida Annual Cancer Report,* an epidemiological series, available on the department's web site at www.doh.state.fl.us/disease_ctrl/epi/cancer/CancerIndex.htm, or the FCDS web site at www.fcds.med.miami.edu.

Table 1. Number of New Cancer Cases by Sex and Race, Florida, 2006

	All Cancers	Lung & Bronchus	Prostate	Breast	Colorectal	Bladder	Head & Neck	Non-Hodgkin(1)	Melanoma	Ovary	Cervix
Florida (2)	**100,303**	**16,154**	**14,043**	**12,826**	**10,173**	**4,740**	**3,881**	**3,905**	**3,388**	**1,478**	**907**
Female	46,787	7,306	-	12,826	4,939	1,138	1,089	1,833	1,342	1,478	907
Male	53,442	8,835	14,043	-	5,222	3,601	2,787	2,071	2,046	-	-
Black	8,888	1,153	1,704	1,226	986	152	323	318	-	117	159
White	88,506	14,755	11,837	11,203	8,914	4,440	3,468	3,486	3,388	1,315	719
Black Female	4,162	405	-	1,226	530	57	92	147	-	117	159
White Female	41,236	6,769	-	11,203	4,270	1,041	968	1,635	1,342	1,315	719
Black Male	4,718	746	1,704	-	456	95	230	171	-	-	-
White Male	47,216	7,976	11,837	-	4,633	3,398	2,498	1,850	2,046	-	-

Source of data: Florida Cancer Data System
(1) Non-Hodgkin refers to Non-Hodgkin lymphoma throughout this report.
(2) Florida incidence total counts and rates throughout this report include 1,140 new cancer cases in persons of “Other” races, 882 cases with unknown race, 44 cases with unknown or unspecified sex, and 2 cases with unknown age. Totals by sex include cases with unknown age and race, as well as cases with Other race. Totals by race include unknown sex and age.

Table 2. Number of New Cancer Cases by County, Florida, 2006

	All Cancers	Lung & Bronchus	Prostate	Breast	Colorectal	Bladder	Head & Neck	Non-Hodgkin	Melanoma	Ovary	Cervix
Florida	**100,303**	**16,154**	**14,043**	**12,826**	**10,173**	**4,740**	**3,881**	**3,905**	**3,388**	**1,478**	**907**
Alachua	912	135	133	132	100	27	33	34	31	15	10
Baker	98	18	14	^	^	^	^	^	^	^	^
Bay	859	137	134	113	72	39	38	34	40	13	^
Bradford	111	23	22	^	12	^	^	^	^	^	^
Brevard	3,739	612	548	474	349	191	154	145	153	44	28
Broward	8,424	1,198	997	1,143	898	379	317	368	261	142	87
Calhoun	51	^	^	^	^	^	^	^	^	^	^
Charlotte	1,242	224	229	126	102	90	46	43	38	14	^
Citrus	1,152	232	194	111	124	83	41	29	36	17	^
Clay	806	131	108	124	73	34	27	22	36	^	^
Collier	2,095	294	427	190	180	112	79	81	107	34	11
Columbia	322	78	32	29	35	14	14	10	^	^	^
Miami-Dade	10,872	1,329	1,574	1,454	1,299	384	436	468	183	175	148
DeSoto	145	25	26	17	13	^	^	^	^	^	^
Dixie	95	23	^	10	^	^	^	^	^	^	^
Duval	4,028	645	577	585	358	159	148	154	124	57	51
Escambia	1,531	259	227	214	137	60	67	52	39	14	11
Flagler	568	107	69	82	53	26	17	36	14	^	^
Franklin	49	13	^	^	^	^	^	^	^	^	^
Gadsden	218	44	23	20	22	^	15	^	^	^	^
Gilchrist	76	14	10	^	^	^	^	^	^	^	^
Glades	44	^	^	^	^	^	^	^	^	^	^
Gulf	75	12	10	^	^	^	^	^	^	^	^
Hamilton	75	18	11	^	^	^	^	^	^	^	^
Hardee	115	16	16	^	13	^	^	^	^	^	^
Hendry	144	29	16	21	13	^	10	^	^	^	^
Hernando	1,324	249	171	151	147	79	48	58	48	16	^
Highlands	856	163	103	64	100	35	20	40	31	14	^
Hillsborough	5,312	832	717	710	517	199	233	216	160	86	47
Holmes	145	28	14	14	15	^	^	^	^	^	^
Indian River	1,037	189	120	134	115	47	40	37	44	17	^
Jackson	275	48	48	36	29	10	17	^	^	^	^
Jefferson	75	10	10	16	^	^	^	^	^	^	^
Lafayette	17	^	^	^	^	^	^	^	^	^	^
Lake	2,501	440	392	259	242	153	70	98	89	52	15
Lee	3,693	635	597	452	332	158	153	125	141	53	26
Leon	821	127	115	121	90	18	37	27	43	10	^
Levy	238	48	32	34	21	11	12	^	^	^	^
Liberty	24	^	^	^	^	^	^	^	^	^	^
Madison	73	^	11	11	10	^	^	^	^	^	^
Manatee	1,888	303	293	209	199	122	81	68	70	44	16
Marion	2,398	429	424	291	256	103	93	85	80	26	22
Martin	1,009	151	144	130	98	69	47	30	41	15	^
Monroe	396	85	39	35	40	19	24	13	19	^	^
Nassau	367	65	73	38	38	20	13	^	11	^	^
Okaloosa	1,009	177	134	149	93	42	49	31	34	14	^
Okeechobee	229	48	29	23	24	11	^	^	11	^	^
Orange	4,201	599	560	581	456	150	147	181	138	56	51
Osceola	941	140	112	115	112	35	39	32	33	15	20
Palm Beach	8,064	1,235	956	1,062	744	550	274	333	353	116	69
Pasco	2,971	540	400	326	310	167	105	106	115	39	28
Pinellas	6,064	1,041	719	869	619	339	242	234	209	82	44
Polk	3,502	627	501	383	345	148	110	150	145	41	35
Putnam	464	112	64	60	41	17	19	15	12	^	^
Saint Johns	902	142	133	127	82	30	42	38	36	12	10
Saint Lucie	1,498	268	225	191	161	99	58	46	46	18	17
Santa Rosa	709	115	106	85	80	26	37	23	32	10	^
Sarasota	3,010	509	521	412	277	173	108	102	99	55	16
Seminole	1,710	250	218	270	172	72	61	68	62	22	14
Sumter	655	113	138	81	57	41	19	24	27	^	^
Suwannee	249	42	29	23	36	10	11	^	^	^	^
Taylor	109	23	16	12	19	^	^	^	^	^	^
Union	181	45	24	13	20	^	^	^	^	^	^
Volusia	3,058	591	368	369	319	115	120	134	80	49	20
Wakulla	119	21	16	14	11	^	^	^	^	^	^
Walton	249	41	35	26	25	12	^	11	12	^	^
Washington	114	23	12	14	^	^	10	^	^	^	^

^ Statistics for cells with fewer than 10 cases are not displayed.
Source of data: Florida Cancer Data System

Table 3. Age-Adjusted Incidence Rates (1) by Sex and Race, Florida, 2006

	All Cancers			Lung & Bronchus			Prostate			Breast			Colorectal			Bladder		
	Rate	CI		Rate	CI		Rate	CI		Rate	CI		Rate	CI		Rate	CI	
Florida (2)	**433.1**	430.4	435.9	**67.0**	66.0	68.1	**128.8**	126.7	131.0	**108.7**	106.8	110.6	**42.8**	41.9	43.6	**19.2**	18.7	19.8
Female	**380.9**	377.3	384.4	**55.3**	54.0	56.6	-	-	-	**108.7**	106.8	110.6	**37.6**	36.5	38.6	**8.3**	7.8	8.8
Male	**500.4**	496.2	504.7	**81.3**	79.7	83.1	**128.8**	126.7	131.0	-	-	-	**48.9**	47.6	50.2	**33.0**	31.9	34.1
Black	**389.7**	381.4	398.2	**52.8**	49.7	56.1	**179.1**	170.3	188.4	**90.6**	85.5	95.9	**44.4**	41.6	47.4	**7.6**	6.4	8.9
White	**432.5**	429.6	435.4	**68.3**	67.2	69.4	**120.8**	118.6	123.0	**109.6**	107.5	111.8	**41.9**	41.0	42.8	**19.9**	19.3	20.5
Black Female	**319.2**	309.4	329.3	**32.6**	29.5	36.1	-	-	-	**90.6**	85.5	95.9	**41.6**	38.1	45.4	**5.0**	3.8	6.5
White Female	**384.7**	380.8	388.6	**57.6**	56.2	59.1	-	-	-	**109.6**	107.5	111.8	**36.3**	35.2	37.5	**8.5**	7.9	9.0
Black Male	**487.8**	473.1	503.0	**80.7**	74.6	87.2	**179.1**	170.3	188.4	-	-	-	**48.3**	43.7	53.4	**10.9**	8.7	13.6
White Male	**494.3**	489.9	498.9	**81.2**	79.5	83.1	**120.8**	118.6	123.0	-	-	-	**48.2**	46.8	49.7	**34.2**	33.1	35.4

	Head & Neck			Non-Hodgkin			Melanoma			Ovary			Cervix		
	Rate	CI		Rate	CI		Rate	CI		Rate	CI		Rate	CI	
Florida (2)	**17.1**	16.6	17.7	**17.0**	16.5	17.6	**17.6**	17.0	18.3	**12.2**	11.5	12.8	**9.2**	8.6	9.9
Female	**8.9**	8.4	9.4	**14.6**	13.9	15.3	**14.2**	13.4	15.0	**12.2**	11.5	12.8	**9.2**	8.6	9.9
Male	**26.5**	25.5	27.5	**19.9**	19.1	20.8	**22.1**	21.2	23.1	-	-	-	-	-	-
Black	**13.7**	12.2	15.3	**12.7**	11.3	14.2	-	-	-	**9.1**	7.5	10.9	**11.3**	9.6	13.3
White	**17.5**	16.9	18.1	**17.1**	16.5	17.7	**17.6**	17.0	18.3	**12.5**	11.8	13.2	**9.0**	8.3	9.7
Black Female	**7.0**	5.6	8.7	**10.8**	9.1	12.8	-	-	-	**9.1**	7.5	10.9	**11.3**	9.6	13.3
White Female	**9.1**	8.5	9.7	**14.7**	13.9	15.5	**14.2**	13.4	15.0	**12.5**	11.8	13.2	**9.0**	8.3	9.7
Black Male	**22.4**	19.4	25.8	**14.8**	12.5	17.5	-	-	-	-	-	-	-	-	-
White Male	**27.0**	26.0	28.1	**20.0**	19.0	20.9	**22.1**	21.2	23.1	-	-	-	-	-	-

Source of data: Florida Cancer Data System

(1) Rates are expressed as number of cases per 100,000 population per year, adjusted to the 2000 U.S. standard population.

(2) Florida incidence rates throughout this report include 1,140 new cancers in persons of "Other" races, 882 cases with unknown race, 44 cases with unknown or unspecified sex, and 2 cases with unknown age. Rates calculated by sex include cases with unknown age and race, as well as cases with Other race. Rates by race include unknown sex and age.

Table 4. Age-Adjusted Incidence Rates (1) by County, Florida, 2006

	All Cancers			Lung & Bronchus			Prostate			Breast			Colorectal		
	Rate	CI		Rate	CI		Rate	CI		Rate	CI		Rate	CI	
Florida	**433.1**	430.4	435.9	**67.0**	66.0	68.1	**128.8**	126.7	131.0	**108.7**	106.8	110.6	**42.8**	41.9	43.6
Alachua	**443.3**	414.6	473.5	**68.7**	57.5	81.6	**141.2**	117.8	168.3	**118.4**	98.8	141.0	**49.2**	39.9	60.0
Baker	**403.7**	325.9	496.8	**77.1**	44.9	126.3	**116.5**	62.1	223.3	**^**	^	^	**^**	^	^
Bay	**441.2**	411.9	472.3	**69.7**	58.5	82.8	**141.0**	117.7	168.3	**110.5**	90.8	133.8	**37.0**	28.9	47.0
Bradford	**352.3**	289.5	426.5	**71.7**	45.3	110.1	**144.0**	89.6	223.4	**^**	^	^	**38.0**	19.6	69.1
Brevard	**474.4**	458.9	490.4	**74.1**	68.3	80.5	**142.0**	130.3	154.8	**122.1**	111.0	134.4	**43.2**	38.7	48.3
Broward	**422.0**	412.9	431.3	**59.5**	56.2	63.1	**114.2**	107.1	121.6	**107.8**	101.5	114.4	**43.9**	41.1	47.0
Calhoun	**322.5**	239.6	428.1	**^**	^	^	**^**	^	^	**^**	^	^	**^**	^	^
Charlotte	**386.5**	361.8	413.4	**59.7**	51.7	69.9	**132.3**	114.9	153.9	**84.5**	67.7	106.4	**27.6**	22.1	35.4
Citrus	**410.5**	384.3	439.1	**77.1**	66.9	89.9	**135.1**	116.1	159.4	**86.5**	68.9	109.9	**41.5**	33.9	51.8
Clay	**451.6**	420.4	484.7	**74.5**	62.0	88.9	**121.0**	98.6	147.8	**129.0**	107.0	154.5	**41.4**	32.3	52.4
Collier	**403.1**	385.2	422.0	**52.3**	46.3	59.1	**159.8**	144.8	176.4	**75.3**	64.2	88.3	**33.9**	28.9	39.8
Columbia	**428.7**	382.7	479.6	**100.3**	79.2	126.3	**88.2**	60.0	126.5	**75.4**	50.0	112.1	**48.4**	33.5	68.6
Miami-Dade	**415.9**	408.1	423.9	**50.2**	47.6	53.0	**135.8**	129.2	142.8	**102.7**	97.4	108.1	**49.4**	46.8	52.2
DeSoto	**347.2**	290.2	414.3	**57.2**	36.1	89.0	**112.3**	73.1	170.0	**89.1**	47.8	159.0	**31.2**	16.1	57.7
Dixie	**444.2**	356.8	551.1	**101.8**	63.8	160.6	**^**	^	^	**79.3**	37.9	178.3	**^**	^	^
Duval	**479.7**	464.9	495.0	**78.7**	72.7	85.1	**158.0**	145.1	172.0	**124.4**	114.5	135.1	**42.6**	38.2	47.3
Escambia	**448.4**	426.1	471.8	**74.8**	65.9	84.6	**146.0**	127.5	166.6	**120.6**	104.7	138.5	**39.9**	33.5	47.4
Flagler	**351.8**	321.3	385.9	**60.2**	48.9	75.3	**80.3**	62.3	106.3	**108.4**	84.2	141.1	**34.6**	25.3	48.2
Franklin	**291.5**	212.9	397.6	**76.5**	39.6	144.0	**^**	^	^	**^**	^	^	**^**	^	^
Gadsden	**425.5**	370.5	486.9	**85.5**	62.0	115.7	**104.8**	65.9	160.3	**72.0**	43.8	113.4	**42.7**	26.7	65.7
Gilchrist	**388.5**	305.0	491.6	**66.2**	36.0	117.2	**97.9**	46.7	193.9	**^**	^	^	**^**	^	^
Glades	**309.5**	222.5	428.0	**^**	^	^	**^**	^	^	**^**	^	^	**^**	^	^
Gulf	**377.2**	296.1	480.6	**60.1**	31.0	115.0	**99.6**	47.1	204.1	**^**	^	^	**^**	^	^
Hamilton	**510.4**	400.5	643.1	**125.5**	74.0	201.2	**139.6**	68.7	266.7	**^**	^	^	**^**	^	^
Hardee	**424.6**	349.9	511.6	**59.5**	33.9	98.2	**120.0**	68.4	197.4	**^**	^	^	**46.5**	24.8	81.4
Hendry	**435.1**	366.6	513.3	**86.9**	58.1	125.7	**94.1**	53.7	158.3	**129.9**	80.2	200.6	**40.3**	21.4	69.7
Hernando	**486.0**	457.1	516.9	**81.7**	71.2	94.2	**116.6**	99.4	137.9	**113.2**	93.9	136.8	**56.7**	46.8	68.9
Highlands	**491.3**	454.0	532.0	**79.1**	66.6	95.0	**118.9**	95.6	149.3	**79.6**	57.9	109.7	**48.0**	38.1	61.4
Hillsborough	**455.6**	443.4	468.1	**72.3**	67.4	77.4	**135.6**	125.8	146.1	**113.1**	104.9	121.8	**44.4**	40.6	48.4
Holmes	**612.8**	515.7	725.3	**113.7**	75.4	167.9	**121.8**	66.0	211.5	**114.9**	61.8	207.0	**60.7**	33.8	104.2
Indian River	**440.3**	411.5	471.4	**74.4**	63.6	87.4	**106.5**	87.8	129.8	**126.8**	104.3	154.4	**45.6**	37.0	56.5
Jackson	**463.0**	409.5	522.7	**80.8**	59.5	108.6	**169.8**	124.9	228.1	**126.1**	87.3	179.8	**50.2**	33.5	73.7
Jefferson	**433.5**	340.2	550.2	**58.0**	27.6	115.5	**130.1**	62.1	251.9	**176.2**	99.9	305.5	**^**	^	^
Lafayette	**203.8**	118.2	335.4	**^**	^	^	**^**	^	^	**^**	^	^	**^**	^	^
Lake	**542.4**	519.8	566.0	**88.1**	79.7	97.5	**165.0**	148.8	183.3	**118.1**	102.8	135.6	**49.9**	43.5	57.3
Lee	**402.0**	388.4	416.2	**63.3**	58.3	68.7	**126.6**	116.5	137.6	**104.3**	94.1	115.5	**34.4**	30.7	38.7
Leon	**377.8**	351.8	405.5	**64.3**	53.4	76.9	**117.7**	96.4	142.8	**98.9**	81.8	119.0	**42.0**	33.6	52.1
Levy	**429.6**	375.4	491.5	**81.6**	59.9	111.3	**115.7**	78.5	170.0	**116.1**	79.6	168.5	**39.4**	24.0	63.5
Liberty	**327.0**	208.7	495.8	**^**	^	^	**^**	^	^	**^**	^	^	**^**	^	^
Madison	**329.7**	257.8	417.9	**^**	^	^	**102.0**	50.6	188.7	**93.2**	45.9	180.0	**46.9**	22.2	89.8
Manatee	**404.0**	385.1	423.9	**59.4**	52.7	67.0	**130.9**	116.1	147.5	**90.4**	77.9	104.9	**41.6**	35.7	48.3
Marion	**479.0**	458.9	500.0	**81.0**	73.2	89.6	**169.9**	153.8	187.7	**115.9**	102.0	131.6	**50.5**	44.1	57.7
Martin	**401.7**	375.1	430.5	**51.9**	43.6	62.4	**113.8**	95.7	136.4	**107.2**	87.7	131.9	**35.8**	28.7	45.3
Monroe	**366.3**	330.2	406.4	**75.1**	59.8	94.8	**65.6**	46.2	93.7	**67.7**	46.7	98.3	**38.7**	27.5	54.6
Nassau	**446.1**	400.5	496.2	**81.2**	62.3	104.8	**174.5**	135.9	224.6	**88.5**	62.1	124.7	**47.8**	33.5	67.0
Okaloosa	**492.3**	462.2	524.1	**87.0**	74.5	101.0	**134.9**	112.7	161.1	**136.3**	115.1	160.6	**46.4**	37.4	57.0
Okeechobee	**489.9**	427.6	560.1	**96.6**	71.0	130.2	**121.2**	81.0	176.8	**106.8**	66.6	167.9	**50.4**	32.1	77.3
Orange	**455.3**	441.5	469.6	**68.4**	63.0	74.2	**134.7**	123.5	146.8	**114.6**	105.4	124.4	**50.8**	46.2	55.7
Osceola	**392.6**	367.6	418.9	**60.6**	50.9	71.7	**101.1**	83.0	122.6	**86.3**	71.1	103.9	**47.8**	39.3	57.8
Palm Beach	**426.6**	416.9	436.5	**60.9**	57.5	64.6	**112.2**	105.1	119.8	**114.1**	106.9	121.7	**36.6**	33.9	39.5
Pasco	**449.1**	432.2	466.7	**76.0**	69.5	83.2	**124.8**	112.7	138.2	**100.3**	88.9	113.2	**44.2**	39.2	49.9
Pinellas	**437.1**	425.8	448.8	**71.1**	66.8	75.8	**112.2**	104.1	120.9	**124.0**	115.5	133.2	**41.5**	38.2	45.1
Polk	**480.0**	463.9	496.5	**81.7**	75.4	88.6	**141.6**	129.4	154.8	**102.7**	92.4	114.1	**45.6**	40.8	50.8
Putnam	**457.2**	415.4	503.1	**105.4**	86.5	128.6	**123.9**	95.2	161.4	**117.8**	88.8	156.1	**39.5**	28.1	55.5
Saint Johns	**434.9**	406.6	465.1	**67.6**	56.9	80.3	**133.1**	111.3	158.8	**118.2**	98.2	142.0	**38.6**	30.6	48.5
Saint Lucie	**392.1**	371.6	413.6	**66.0**	58.1	75.0	**119.1**	103.9	136.6	**104.3**	89.1	121.9	**39.5**	33.5	46.6
Santa Rosa	**480.0**	444.7	517.5	**76.0**	62.5	91.9	**149.3**	121.6	182.8	**108.5**	86.4	134.9	**54.8**	43.3	68.8
Sarasota	**407.1**	391.1	424.0	**61.0**	55.5	67.2	**146.0**	133.4	160.3	**120.2**	107.2	135.1	**34.1**	29.9	39.1
Seminole	**409.4**	389.9	429.6	**63.3**	55.6	71.8	**111.7**	97.0	128.4	**116.6**	103.0	131.6	**41.2**	35.2	48.0
Sumter	**385.9**	354.5	420.9	**68.1**	55.2	85.1	**155.0**	129.3	188.3	**106.2**	81.6	140.7	**33.8**	24.9	47.1
Suwannee	**471.7**	413.9	537.2	**73.1**	52.6	101.7	**114.6**	76.5	169.7	**91.3**	56.6	144.5	**67.0**	46.7	95.7
Taylor	**437.1**	358.2	530.1	**95.6**	60.4	146.0	**127.7**	72.4	217.6	**104.2**	52.8	192.0	**73.7**	44.2	118.2
Union	**1249.0**	1066.7	1460.8	**317.6**	229.0	437.6	**318.2**	194.1	530.9	**260.3**	138.1	457.6	**152.6**	90.8	248.8
Volusia	**412.1**	397.1	427.6	**75.8**	69.7	82.4	**103.6**	93.2	115.1	**99.4**	89.0	111.0	**40.2**	35.8	45.2
Wakulla	**385.6**	317.6	465.5	**67.6**	41.4	106.5	**94.6**	52.8	168.1	**86.6**	46.8	151.7	**41.9**	20.6	77.0
Walton	**331.6**	291.1	377.4	**52.3**	37.5	72.8	**89.0**	61.9	126.9	**70.3**	45.4	107.6	**32.5**	21.0	49.8
Washington	**413.5**	340.3	500.6	**81.3**	51.3	126.1	**92.0**	47.3	168.1	**99.2**	52.8	177.8	**^**	^	^

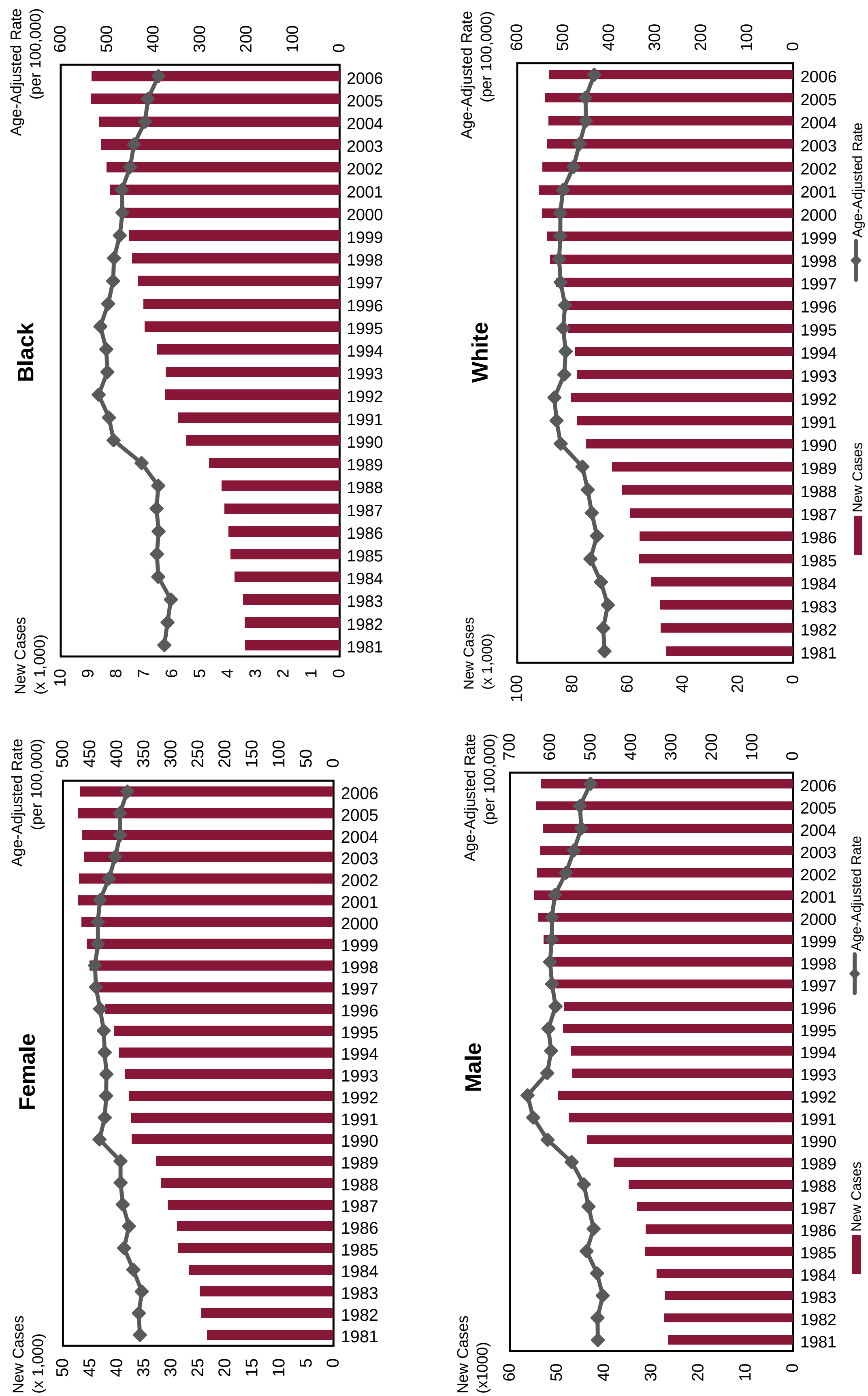
(1) Rates are expressed as number of cases per 100,000 population per year, adjusted to the 2000 U.S. standard population.
^ Statistics for cells with fewer than 10 cases are not displayed
Source of data: Florida Cancer Data System

Table 4. Age-Adjusted Incidence Rates (1) by County, Florida, 2006

	Bladder			Head & Neck			Non-Hodgkin			Melanoma			Ovary			Cervix		
	Rate	CI		Rate	CI		Rate	CI		Rate	CI		Rate	CI		Rate	CI	
Florida	**19.2**	18.7	19.8	**17.1**	16.6	17.7	**17.0**	16.5	17.6	**17.6**	17.0	18.3	**12.2**	11.5	12.8	**9.2**	8.6	9.9
Alachua	**13.4**	8.8	19.7	**16.2**	11.1	23.0	**17.3**	11.9	24.4	**18.6**	12.5	27.1	**12.3**	6.8	21.1	**9.7**	4.6	18.3
Baker	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^
Bay	**21.0**	14.9	29.1	**18.9**	13.3	26.3	**17.8**	12.3	25.3	**23.9**	16.9	33.1	**13.1**	6.9	23.4	^	^	^
Bradford	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^
Brevard	**22.7**	19.6	26.4	**19.5**	16.4	23.0	**18.5**	15.5	22.0	**23.0**	19.3	27.4	**9.9**	7.2	13.9	**9.3**	6.0	14.0
Broward	**18.3**	16.4	20.3	**16.1**	14.3	18.0	**18.4**	16.6	20.5	**16.4**	14.4	18.7	**13.5**	11.3	16.0	**8.9**	7.1	11.0
Calhoun	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^
Charlotte	**23.4**	18.5	30.6	**14.5**	10.1	21.5	**14.1**	9.6	21.2	**19.2**	12.3	29.5	**7.9**	3.8	18.4	^	^	^
Citrus	**25.8**	20.3	34.1	**18.0**	12.4	26.7	**11.9**	7.1	20.1	**12.7**	8.5	20.4	**9.4**	5.4	20.6	^	^	^
Clay	**20.0**	13.8	28.3	**14.9**	9.7	22.2	**12.9**	8.0	20.0	**22.4**	15.6	31.4	^	^	^	^	^	^
Collier	**19.5**	16.0	23.9	**15.6**	12.2	20.0	**15.8**	12.3	20.2	**24.0**	19.3	29.7	**14.3**	9.5	21.3	**7.4**	3.6	13.8
Columbia	**17.6**	9.6	31.0	**18.2**	9.8	32.1	**14.8**	7.0	28.4	^	^	^	^	^	^	^	^	^
Miami-Dade	**14.5**	13.1	16.1	**16.6**	15.1	18.2	**18.1**	16.5	19.8	**8.6**	7.4	10.0	**12.1**	10.3	14.0	**11.2**	9.5	13.2
DeSoto	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^
Dixie	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^
Duval	**19.7**	16.7	23.1	**17.2**	14.5	20.3	**18.3**	15.5	21.5	**20.2**	16.8	24.2	**12.2**	9.2	15.9	**10.9**	8.1	14.4
Escambia	**17.2**	13.1	22.3	**19.5**	15.1	25.0	**14.9**	11.1	19.7	**14.1**	10.0	19.7	**7.4**	4.0	13.1	**7.2**	3.6	13.4
Flagler	**13.8**	9.0	23.1	**9.8**	5.6	18.7	**21.4**	14.8	32.3	**10.3**	5.4	21.2	^	^	^	^	^	^
Franklin	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^
Gadsden	^	^	^	**28.4**	15.8	48.0	^	^	^	^	^	^	^	^	^	^	^	^
Gilchrist	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^
Glades	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^
Gulf	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^
Hamilton	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^
Hardee	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^
Hendry	^	^	^	**31.0**	14.8	57.9	^	^	^	^	^	^	^	^	^	^	^	^
Hernando	**24.7**	19.1	32.3	**21.1**	14.9	29.7	**20.1**	14.5	27.9	**24.0**	16.7	34.0	**9.4**	5.1	18.8	^	^	^
Highlands	**15.6**	10.7	24.6	**16.6**	9.5	28.4	**20.1**	13.7	30.4	**21.8**	13.4	35.5	**13.4**	6.4	29.9	^	^	^
Hillsborough	**17.5**	15.1	20.1	**19.7**	17.2	22.4	**18.6**	16.2	21.3	**16.3**	13.8	19.0	**13.5**	10.8	16.7	**8.2**	6.0	10.9
Holmes	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^
Indian River	**16.3**	11.6	23.4	**20.4**	14.0	29.5	**14.8**	10.1	22.0	**19.7**	13.7	28.8	**11.9**	6.6	23.0	^	^	^
Jackson	**16.9**	8.1	32.9	**28.7**	16.6	47.7	^	^	^	^	^	^	^	^	^	^	^	^
Jefferson	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^
Lafayette	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^
Lake	**29.4**	24.7	35.1	**15.2**	11.7	19.8	**21.9**	17.5	27.5	**23.8**	18.6	30.3	**25.5**	18.4	35.3	**8.7**	4.6	15.8
Lee	**15.2**	12.8	18.0	**17.7**	14.9	21.1	**13.8**	11.3	16.8	**17.5**	14.5	21.1	**12.2**	8.8	16.7	**7.7**	4.9	11.8
Leon	**8.9**	5.2	14.3	**16.9**	11.8	23.7	**12.5**	8.2	18.6	**26.0**	18.6	35.6	**8.7**	4.1	16.7	^	^	^
Levy	**19.5**	9.7	38.4	**19.8**	10.2	38.3	^	^	^	^	^	^	^	^	^	^	^	^
Liberty	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^
Madison	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^
Manatee	**22.5**	18.6	27.3	**19.4**	15.2	24.6	**13.6**	10.4	17.7	**16.5**	12.6	21.5	**18.2**	12.9	25.5	**10.1**	5.7	17.1
Marion	**18.1**	14.6	22.4	**20.0**	16.0	25.1	**17.5**	13.7	22.4	**17.8**	13.8	23.1	**10.3**	6.4	16.3	**14.1**	8.6	22.2
Martin	**25.4**	19.2	34.1	**21.9**	15.6	30.8	**10.6**	7.1	16.8	**17.8**	12.1	26.6	**10.2**	5.3	21.6	^	^	^
Monroe	**18.5**	11.1	30.8	**20.6**	13.1	32.8	**12.5**	6.4	23.8	**19.7**	11.7	33.2	^	^	^	^	^	^
Nassau	**23.4**	14.2	37.6	**16.0**	8.4	28.9	^	^	^	**14.4**	6.9	27.8	^	^	^	^	^	^
Okaloosa	**20.4**	14.7	27.9	**23.0**	17.0	30.7	**15.5**	10.5	22.3	**18.2**	12.6	25.9	**12.9**	7.0	22.2	^	^	^
Okeechobee	**22.1**	10.9	42.3	^	^	^	^	^	^	**27.5**	13.3	52.6	^	^	^	^	^	^
Orange	**17.5**	14.8	20.6	**15.5**	13.0	18.2	**19.1**	16.3	22.1	**18.1**	15.2	21.5	**11.2**	8.5	14.7	**9.7**	7.2	12.9
Osceola	**15.4**	10.7	21.6	**15.5**	11.0	21.5	**13.7**	9.4	19.6	**15.7**	10.8	22.2	**11.6**	6.4	19.5	**15.3**	9.3	23.9
Palm Beach	**25.2**	23.0	27.5	**15.6**	13.7	17.6	**17.2**	15.3	19.4	**22.4**	19.9	25.1	**12.0**	9.8	14.7	**9.6**	7.4	12.4
Pasco	**22.8**	19.4	26.9	**16.9**	13.7	20.9	**16.2**	13.1	20.1	**19.3**	15.6	23.8	**11.8**	8.1	17.1	**11.4**	7.3	17.3
Pinellas	**22.4**	20.1	25.1	**18.0**	15.7	20.5	**17.3**	15.0	19.8	**18.0**	15.5	21.0	**10.8**	8.5	13.8	**8.3**	5.9	11.4
Polk	**18.8**	15.9	22.2	**16.1**	13.2	19.6	**21.3**	17.9	25.2	**23.8**	19.9	28.3	**10.9**	7.7	15.3	**12.9**	8.9	18.2
Putnam	**15.2**	8.9	26.5	**19.8**	11.7	32.9	**16.3**	9.0	28.8	**17.2**	8.4	33.0	^	^	^	^	^	^
Saint Johns	**14.0**	9.4	20.7	**19.6**	14.1	27.2	**18.3**	12.9	25.8	**18.5**	12.9	26.4	**10.1**	5.2	19.4	**12.1**	5.6	23.6
Saint Lucie	**24.0**	19.4	29.8	**15.0**	11.3	19.9	**11.9**	8.6	16.5	**12.8**	9.2	17.9	**10.5**	6.0	17.7	**13.6**	7.7	22.6
Santa Rosa	**18.7**	12.1	27.8	**24.3**	17.0	34.0	**15.3**	9.7	23.5	**23.9**	16.3	34.3	**13.3**	6.4	25.1	^	^	^
Sarasota	**19.9**	16.8	23.8	**17.8**	14.3	22.3	**12.2**	9.8	15.6	**15.5**	12.2	19.9	**14.1**	10.3	19.9	**6.5**	3.4	12.1
Seminole	**18.5**	14.4	23.4	**14.2**	10.8	18.3	**16.5**	12.8	21.0	**16.6**	12.7	21.4	**9.8**	6.1	15.0	**5.7**	3.1	9.9
Sumter	**22.2**	15.8	33.1	**11.8**	6.7	21.9	**14.9**	9.0	25.7	**15.7**	9.9	27.1	^	^	^	^	^	^
Suwannee	**17.6**	8.4	36.1	**21.5**	10.6	41.7	^	^	^	^	^	^	^	^	^	^	^	^
Taylor	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^
Union	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^
Volusia	**14.3**	11.7	17.4	**17.9**	14.7	21.7	**17.8**	14.8	21.4	**13.1**	10.2	16.8	**11.8**	8.6	16.3	**6.5**	3.8	10.6
Wakulla	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^
Walton	**14.6**	7.5	27.8	^	^	^	**16.4**	8.1	31.3	**17.2**	8.8	32.8	^	^	^	^	^	^
Washington	^	^	^	**35.8**	17.1	70.5	^	^	^	^	^	^	^	^	^	^	^	^

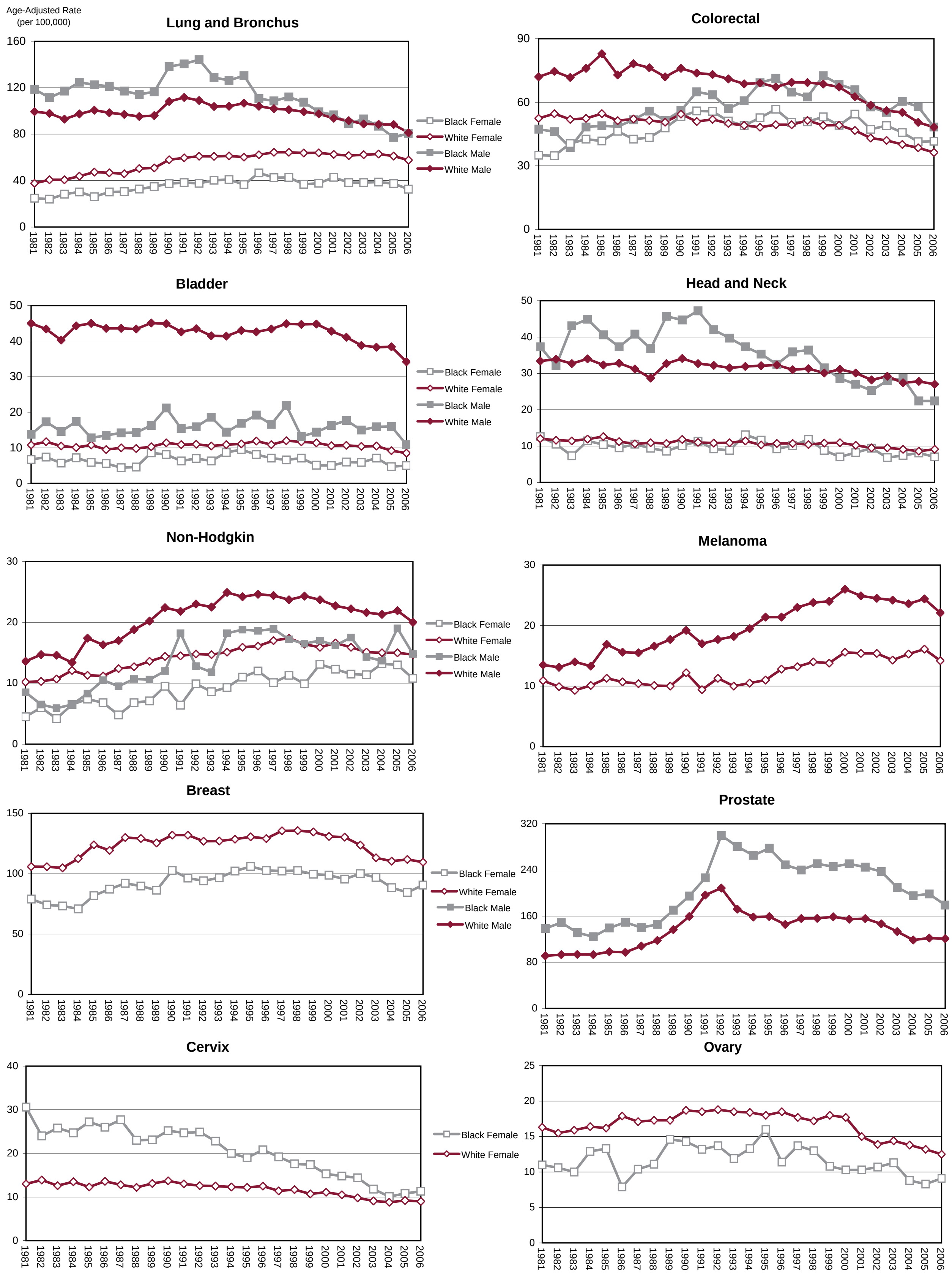
(1) Rates are expressed as number of cases per 100,000 population per year, adjusted to the 2000 U.S. standard population.
^ Statistics for cells with fewer than 10 cases are not displayed
Source of data: Florida Cancer Data System

Figure 1. New Cases and Age-Adjusted Incidence Rates for All Cancers by Sex and by Race, Florida, 1981-2006



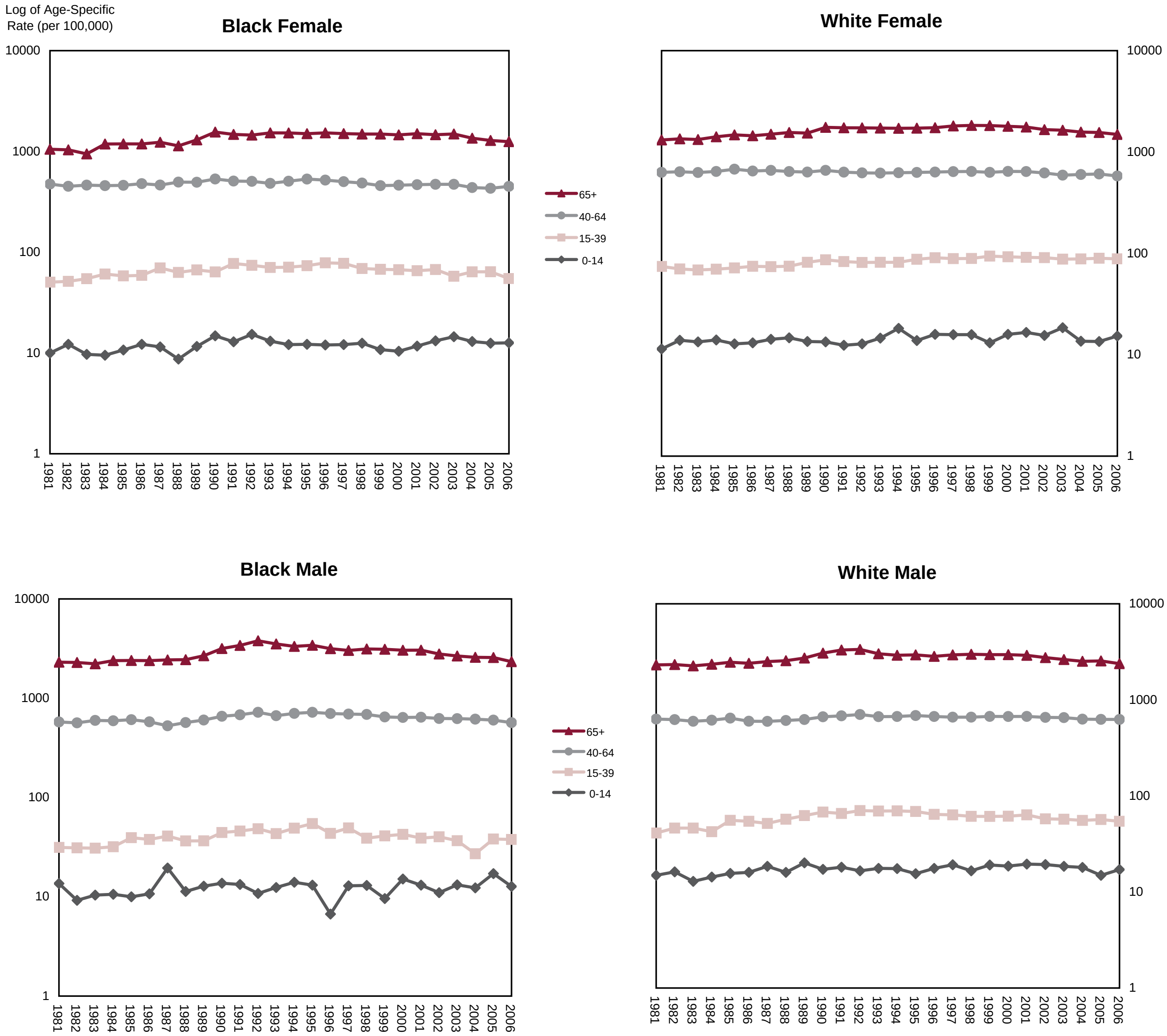
Source of data: Florida Cancer Data System

Figure 2. Age-Adjusted Incidence Rates by Sex and Race, Florida, 1981-2006



Source of data: Florida Cancer Data System

Figure 3. Age-Specific Incidence Rates for All Cancers by Sex, Race, and Age Group, Florida, 1981-2006



Source of data: Florida Cancer Data System

Section 9: Notifiable Disease Reporting: Changes to Chapter 64D-3, Florida Administrative Code (F.A.C.)

Notifiable disease or condition reporting is a core public health function codified in state law, Florida Statute 381.0031. Periodically, the Florida Department of Health (FDOH) updates Rule 64D-3, *F.A.C.* in order to ensure effective disease reporting. This enables FDOH the ability to collect accurate data about diseases occurring in Florida and to investigate and respond to cases of disease present in communities across the state in order to protect the health of all Floridians. Chapter 64D-3 specifies what diseases or conditions are required to be reported, the information to be included in the report, who is required to report, and the methods and time period for reporting.

During 2007 and 2008, FDOH conducted a rewrite of Chapter 64D-3 *F.A.C.* The updated version of Chapter 64D-3, *F.A.C.*, became **effective November 24, 2008**. Making updates to Chapter 64D-3 and the list of notifiable diseases or conditions is a collaborative process between the FDOH central office, the county health departments, and reporting partners such as hospitals, physicians, and laboratories. In addition, when making revisions, the process includes official public comment periods and often topic-specific workshops. (Chapter 64D-3 previously underwent a significant rewrite that was completed in 2006). For changes that became effective November 24, 2008, the year 2009 will be the first complete reporting year where these changes will be effective and reflected in the data.

There are over 90 different diseases or conditions that FDOH requires for each individual case to be reported in addition to reporting of outbreaks or clusters of **any** type of disease.

Five new diseases or conditions were added during the 2008 revision:

1) Amebic encephalitis,
2) Arsenic poisoning,
3) Carbon monoxide,
4) *Staphylococcus aureus* community-associated mortality,
5) *Staphylococcus aureus* isolated from a normally sterile site (to be reported **only** by those laboratories participating in FDOH's electronic laboratory reporting process).

One disease was removed from the list of reportable diseases: disease due to *Clostridium perfringens*, epsilon toxin.

Several important items are taken into consideration when determining if a disease or condition should be added to the list of diseases or conditions in Chapter 64D-3. In particular, surveillance takes place if a characteristic of a disease or condition requires rapid public health response due to the potential to cause significant illness or death and potential for spread between people or spread to people (from the environment or animals).

To obtain more information, such as the updated version of Chapter 64D-3, *F.A.C.*, or other important reporting documents and guidelines, please visit http://www.doh.state.fl.us/disease_ctrl/epi/topics/surv.htm or contact the Florida Department of Health state offices, or your local county health department.

GREAT SEAL OF THE STATE OF FLORIDA
IN GOD WE TRUST

DIVISION OF Disease Control

FLORIDA DEPARTMENT OF HEALTH